



October 16<sup>th</sup>, 2013

**Hazardous Materials Facility Closure Plan  
Draft Plan "A"  
Absorbent Technologies Inc  
140 Queen Avenue SW, Albany, Oregon**

NRC Environmental Services is pleased to present the following draft Facility Closure Plan to remove hazardous materials from the above-referenced Absorbent Technologies (ATI) facility. This plan covers emptying, neutralizing and cleaning the 20,000-gallon acrylonitrile tank on the premises, emptying and cleaning the remaining aboveground storage tanks, and categorization, packaging and removal of miscellaneous smaller containers of hazardous and Special wastes. Later drafts of this Closure Plan will address additional elements of the proposed requirements, including chemical hoods and ventilation ducting, compressors, dust collection systems and others.

This "Plan A" draft Closure Plan proposes to remove the residual acrylonitrile product by re-starting on-site reaction processes that produce Zeba absorbent material. By producing additional batches of Zeba absorbent, some or all of the remaining raw material products on this facility can be consumed. This is in contrast to the separate "Plan B" draft Closure Plan that proposes to remove residual acrylonitrile product and other raw materials by transportation to off-site Treatment, Storage and Disposal Facilities.

**1. Background:**

NRC understands the former ATI facility located at 140 Queen Avenue in Albany, Oregon has been left unattended for some time, and that a plan is requested to remove hazardous and other materials from the site to prepare it for other uses. NRC personnel visited the site on October 10<sup>th</sup> and 14<sup>th</sup>, 2013 in order to assemble the information necessary to prepare a scope of work. This draft Closure Plan is intended to address some of the requirements set forth by the City of Albany in the document titled "Hazardous Materials Closure Plan" (no date listed).

This facility, in conjunction with a related facility on Ferry Avenue in Albany, Oregon, produced a product called "Zeba", which was used as a soil amendment intended to retain soil moisture and promote plant growth. A simplified description of the manufacturing process that resulted in Zeba product is that starch powder was dehydrated in a reaction that uses acrylonitrile. The reaction process was carried out at the Ferry Avenue facility using raw materials stored at the Queen Avenue facility (which facility is addressed in this Closure Plan).

**2. Site Assessment**

The Site Assessment portion of this Closure Plan has not been completed at this time. NRC has not had sufficient time to perform a site assessment and develop a comprehensive inventory of the buildings, rooms, processes, equipment, and hazardous materials present on site.

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A partial inventory of aboveground storage tanks was completed during a brief visit to the site on October 14<sup>th</sup>, 2013. The results of this inventory are presented in Section 3, Item F.

### **3. Remediation Proposal:**

Only a portion of the required elements of this Remediation Proposal section can be completed at this time. Additional inventory of buildings, rooms, processes, equipment, and hazardous materials is necessary to address all of the City of Albany requirements for a compliant Facility Closure Plan.

#### **3.1. Interior Rooms**

NRC has not completed an inventory of interior rooms. NRC site activities did include a brief overview of the Quality Assurance laboratory, which holds a large number of small containers of various hazardous materials, as well as other areas in which hazardous material were noted by not yet inventoried. Management of these materials is anticipated to involve the following steps:

- If necessary, application for a Hazardous Waste Generator Site Identification number for the property owner of the facility;
- Field hazard categorization of commercial chemical products, followed by categorization, segregation and waste determinations that meet the requirements of 40 CFR 260-262;
- Sampling and laboratory analysis of stored waste products, followed by categorization, segregation and hazardous waste determinations that meet the requirements of 40 CFR 260-262;
- Profiling of wastes with an approved Treatment, Storage and Disposal Facility (TSDF);
- Packaging of hazardous materials in UN-rated containers appropriate for the volume and nature of the wastes;
- Preparation of labels, markings and shipping documents for waste shipments that meet the requirements of 49 CFR 172;
- Transportation of accumulated wastes off-site to an approved TSDF for disposal.

#### **3.2. Roof-Mounted Equipment**

No information is currently available as to the types, nature or condition of any roof-mounted equipment.

#### **3.3. Exterior Equipment**

The following is a partial list of exterior equipment that will be addressed during facility closure activities. NRC understands that this is not a comprehensive list and will work to complete the inventory of equipment, processes and systems prior to the onset of site activities.



### 3.3.1. Acrylonitrile Tank

#### 3.3.2. General Technique

NRC proposes to re-start systems on this facility and (if necessary) on the nearby Ferry Street facility. In so doing, raw materials including acrylonitrile (AN) would be consumed in the production of Zeba absorbent, thereby reducing the hazard presented by hazardous materials on site.

#### 3.3.3. Transfer to Ferry Street

An existing stock of DOT approved 250-gallon transfer totes will be used to take material out of the existing AN bulk tank for use on the Ferry Street facility. Refer to the Acrylonitrile Portable Tank Filling standard operating procedure included as Appendix A of this draft Plan.

#### 3.3.4. Consumption of AN Product

Reaction processes designed to produce Zeba absorbent will be started and monitored using former employees of Absorbent Technologies, Inc. Standard operating procedures for operation of the Graft reactor and the Saponification reactor are included as Appendices C and D of this draft plan. Reaction processes will be continued until only a de minimis amount of AN is present in the existing bulk tank on the Queen Avenue facility.

### 3.4. Other Bulk Storage Tanks and Containment Areas

#### 3.4.1. General Methods

Other bulk storage tanks present on the facility will be emptied, entered using confined space entry techniques, and cleaned using manual and high-pressure washing methods. Wastes generated by emptying or by cleaning methods will be collected in drums, totes or vacuum trucks for shipment to an appropriate facility. A list of bulk tanks is included as Table 1 below based on a partial inventory of tanks and their contents conducted on October 14<sup>th</sup>, 2013. A copy of NRC's confined space entry program is included as Appendix D.

Table 1: ATI Facility Bulk Tanks

Tank No.	Description / Product	Tank Size/Type	Contents	Location
1	Phosphoric Acid	~10,000 gallon poly	Empty	Exterior, ammonia scrubber tank farm
2	No Markings	~10,000 gallon poly	Empty	Exterior, ammonia scrubber tank farm
3	Ammonia Scrubber	~10,000 gallon fiberglass	Unknown	Exterior, ammonia scrubber tank farm
4	No Markings	~20,000 gallon stainless steel	Empty	Exterior
5	No Markings	~10-12,000	Empty	Exterior

		gallon stainless steel		
6	No Markings	~20,000 gallon stainless steel	Empty	Exterior
7	Acrylonitrile Containment Tank	~12,000 gallon steel	Unknown	AN tank farm
8	Tank shown on plans but no longer present			
9	Acrylonitrile	~20,000 gallon	4,000 gal	AN tank farm
10	Activated Starch Reactor	~3-5,000 gallon stainless steel	Unknown	AN tank farm
11	Graff Reactor	~1-2,000 gallon stainless steel	Unknown	AN tank farm
12	Spill Containment for Acrylonitrile	~12,000 gallon steel	Unknown	AN tank farm
13	Baghouse System, empties to 55-gal dm	~500 gallon stainless steel	Unknown	Exterior
14	No Markings	~500-gallon steel	Unknown	Exterior
15	Ventilation system, attached to building		N/A	Exterior
16	Baghouse System, empties to 55-gal dm	~500 gallon stainless steel	Unknown	Exterior
17	Finished Product	Several tanks, stainless steel	Unknown	South Warehouse
18	Ammonium Phosphate A	~10,000 gallon fiberglass	300-500 gallons	Main Building
19	Ammonium Phosphate B	~10,000 gallon fiberglass	200-300 gallons	Main Building
20	Potassium Hydroxide	~20,000 gallon stainless steel	1,500 gallons	Main Building
21	Hydrated Starch Tank	~10,000 gallon stainless steel	Some sludge	Main Building
22	Starch	~5,000 gallon stainless steel	Empty	Main Building
23	Starch	~5,000 gallon stainless steel	Empty	Main Building
24	Saponification Reactor A	~20,000 gallon stainless steel	Empty	Main Building
25	Saponification	~20,000 gallon	Empty	Main Building

	Reactor B	stainless steel		
26-33?	Miscellaneous new tanks, not in service	Varies	Empty	Exterior

### 3.4.2. Transfer of Residual Tank Contents

Current inventory of bulk tanks was not finished on October 14<sup>th</sup>, 2013, and some tank contents remain unknown. NRC proposes complete the inventory process prior to beginning transfer activities.

Tanks containing residual product will be emptied using chemically compatible pneumatic diaphragm pumps and chemically compatible hose, or alternatively, a chemically compatible vacuum tanker truck will be used to empty residual product. For example, a stainless steel pump with Teflon diaphragms would be used in conjunction with chemical hose to transfer residual product from the potassium hydroxide tank. Product tanks will be not require sampling prior to profiling, transfer, transportation and disposal of their residual tank contents.

### 3.4.3. Tank Entry and Cleaning

All cleaning of bulk tanks will be performed using confined space entry protocols. A copy of NRC's confined space entry program is included as Appendix B. NRC understands that the majority of these tanks will be cut up for scrap or for landfill disposal, and as such, the standard for cleanliness used for tanks only needs to meet the acceptance criteria for scrap metal recyclers and/or landfill facilities.

#### 3.4.3.1. Acrylonitrile Tank

After emptying, entry and cleaning of the AN tank will require Level A personal protective equipment. Required personal protective equipment (PPE), decontamination of personnel and equipment, and management of tank cleaning and decontamination wastes will be addressed in NRC's comprehensive Health and Safety Plan (HASP).

Prior to entry into the tank, lockout/tagout of tank systems will be performed. Refer to the copy of NRC's Lockout/Tagout Program included as Appendix E. Draining and bleeding of AN piping will be separately performed using the methods outlined in section 1.3 below.

Neutralization of residual tank contents and removal of the neutralized residue will be required prior to tank entry and cleaning. Neutralization will be accomplished by the addition of excess sodium bisulfite powder to the tank after opening in Level A PPE.

NRC understands that the AN tank and systems are owned separately, and no standards for the return condition of the tank or associated systems has been provided as of this writing.

### 3.4.3.2. Other Aboveground Storage Tanks

Entry and cleaning of other aboveground storage tanks and secondary containment vaults listed in the above Table 1 will be accomplished using the scheme listed below:

- Install protection on adjacent storm water inlets prior to beginning work (refer to the Storm Water System Maps included as Appendix F);
- As needed, lock out and tag any hazardous sources of energy associated with the tank, including mechanical agitators, inlet and outlet piping, steam coils, scrubbers, and others;
- Set up OSHA-compliant rescue and/or retrieval system prior to entry;
- Perform atmospheric monitoring of tank internal atmosphere;
- Complete Confined Space Entry permit, recording the results of atmospheric monitoring as well as other required information such as the rescue plan, communication, lighting and other required equipment and a list of entrants and attendants.

### 3.4.4. Chemical Piping

Piping, pumps, valves and other accessories attached to systems that handle hazardous materials will be opened, drained and cleaned to ensure that no hazardous materials remain in them. This process of draining and cleaning will parallel the cleaning of tanks in that a scheme similar to that presented in 3.4.3.2 above will be used, with the exception that no confined space entry will be needed.

- Install protection on adjacent storm water inlets prior to beginning work (refer to the Storm Water System Maps included as Appendix F);
- As needed, lock out and tag any hazardous sources of energy associated with the piping, including valves, pumps, control systems, and others;
- Ground and bond piping as needed to prevent static discharges;
- Break or cut piping at low points using non-sparking tools and methods,
- Drain residual product from piping at all low points, collecting product in drums or other containers and purging piping with an inert gas such as nitrogen;
- Flush piping with line-jetting equipment, collecting rinsate in drums or other temporary storage containers for later characterization.

## 4. Contaminant Removal Verification

NRC understands that any items that are not removed from the site as a part of facility closure activities must be sampled and analyzed in order to determine the



effectiveness of any equipment decontamination. NRC will work with the property owner to determine which systems will require demolition as a part of the facility closure, and which systems and equipment will remain in place in the facility.

Any systems that remain in place at the completion of facility closure activities will be sampled for the presence of likely contaminants and the results of laboratory analysis of those samples will be made available in the final Closure Report for the facility. No comprehensive list of systems or their likely contaminants is currently available.

Disposal documentation will be provided for any items or systems removed and disposed of during closure activities, to include profiles, non-hazardous or hazardous waste manifests, landfill scale tickets, scrap metal recycling receipts and others.

I appreciate the opportunity to provide you with this draft Facility Closure Plan. If you have any questions regarding this document, you can reach me via e-mail at [ransdell@nrc.com](mailto:ransdell@nrc.com), or by cell phone at 503-209-2209.

Sincerely,

Robert A. Ransdell, Ph.D.

Project Manager

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**List of Appendices:**

- A. Acrylonitrile Tank Transfer Procedures
- B. Graft Reactor Procedures
- C. Saponification Reactor Procedures
- D. NRC Confined Space Entry Program
- E. NRC Lockout/Tagout Program
- F. Facility Storm Sewer Maps



## **Appendix A: Acrylonitrile Portable Tank Filling Procedures**



# ACRYLONITRILE PORTABLE TANK FILLING

## Standard Operating Procedure

Revisions:	Date:	Author:	Changes:
01	12/30/2005	L. Bielenberg	
02	06/02/2006	L. Bielenberg	Updated PPE
03	11/26/2008	J. Goss	Added Related SOPs and PPE sections, Updated PPE

APPROVED BY	SIGNATURE
Corporate Controller	
Document Controller	

**PURPOSE:**

Procedures for filling the 250-gallon DOT-approved portable tanks for delivery of acrylonitrile (AN) to the Ferry Street Facility.

**OPERATOR:** Maintenance employees at the Queen Avenue Facility.

**RELATED POLICY:**

**RELATED PROCEDURE(S):**

**EXHIBIT(S):**

**Required PPE:**

1. Full Face, Air-Purifying Respirator with Defender Multi-purpose Cartridges
2. Neoprene Boots with SilverShield Liners or Hazmax Boots
3. PVC Gloves with SilverShield Liners or Rough Butyl Gloves
4. Cerynex Tychem SL (or equivalent) chemical resistant suit with hood

**Process Description**

Acrylonitrile (AN) is delivered to the ATI Development Center in 250-gallon DOT-approved portable tanks. The portable tanks are filled at the Zeba Manufacturing Facility. A DOT-licensed shipper transports the portable tanks between the two Facilities.

The AN Portable Tank Filling Pump pumps acrylonitrile, at a flow rate of 20 gpm, from the AN Storage Tank through double-walled carbon steel piping into the portable tank located in an exhausted enclosure.

**Operation**

1. During the loading of Portable Tanks, it is required that the process be continuously monitored by an operator. A second operator should be in the area (remote control area) for back-up and safety reasons at all times. If it is necessary for either of the operators to leave the area for any reason, the filling process must be shut down.
2. Put on all PPE

- a. Full Face, Air-Purifying Respirator with Defender Multi-purpose Cartridges
  - b. Neoprene Boots with SilverShield Liners
  - c. PVC Gloves with SilverShield Liners or Rough Butyl Gloves
  - d. Cerynex Tychem SL (or equivalent) chemical resistant suit with hood
3. Verify that the AN Storage Tank has sufficient volume to fill the portable tanks.
    - a. Check AN tank level indicator on the PC or Touch Screen
    - b. There should be at least 4000 gal. in the AN Storage Tank
    - c. Low level indicator will be activated if below this volume
    - d. Do not fill Portable Tanks if below this volume (see supervisor)
  4. Check Air sampler on AN Storage Tank deck (LD 01321), to check for transient AN Vapors in AN Portable Tank Valve Box (VB 0132).
    - a. If AN vapors are present do not fill portable tanks.
    - b. Determine where vapors originated from and repair if leak has occurred, before filling begins.
  5. If no leaks detected, position, secure, and bond the AN Portable Tank on the Scale (WE 01311) in the AN Portable Tank Valve Box (VB 0132).
    - a. Center Tank on Scale
    - b. Connect Grounding cable to Portable Tank
  6. Check that area safety shower is functional (ES 101).
  7. Remove the blinds from the dry-loc valve on the filling dip pipe located on the top of the portable tank.
  8. Connect the Dry-loc valve on the loading hose to the Dry-loc valve on the filling dip pipe.
  9. Remove the blind on the Dry-loc valve on the vent pipe located on the top of the portable tank.
  10. Connect the Dry-loc valve on the vent hose to the Dry-loc valve on the vent pipe on the portable tank.
  11. Open the manual isolation valves on the filling hose, the portable tank dip pipe, vent hose, and the portable tank vent.
  12. On the touch screen enter the amount of AN to be delivered to the Portable Tank.
  13. Start the AN Portable Tank Filling Pump (PU 0113) to transfer the acrylonitrile from the AN Storage Tank (TK 0110) to the portable tank.
    - a. Starting pump should remotely actuate AN Portable Tank load valve (WV 01302).

- b. Starting pump should remotely actuate AN Tank shut-off valve (FV 01136).
- 14. When the portable tank is full; verify that the pump (PU 0113) has stopped, and the remotely activated shutoff valve (FV 01136) on the AN filling line is close.
  - a. Shutoff valve (FV 01136) should shut off automatically when pump (PU 0113) shuts down.
  - b. In the event that pump doesn't shut down automatically, there are 5 Emergency Stop buttons (ES 1002), located around the facility, one each at the AN loading, unloading, and transfer platforms and two inside the plant in the production areas.
- 15. Close the manual isolation valves on the portable tank fill hose and dip pipe and disconnect the Dry-loc fitting.
  - a. Replace dry-loc cap to portable tank dip pipe valve
  - b. Replace dry-loc cap to fill hose valve
- 16. Close the manual isolation valves on the vent hose and the portable tank vent line and disconnect the dry-loc fittings.
  - a. Replace dry-loc cap on portable tank vent valve
  - b. Replace dry-loc cap on portable vent hose valve
- 17. Remove ground cable from AN portable tank.
- 18. Remove AN portable tanks from Portable tank Valve Box (VB -0132), and store on the Portable Tank storage area just North of VB-0132.
- 19. Return any operating equipment to proper storage.
- 20. Take rinsing shower after AN transfer complete and return all PPE to the proper storage areas.



## **Appendix B: Graft Reactor Procedures**



# GRAFTING

## Standard Operating Procedure

Revisions:	Date:	Author:	Changes or comments:
01	09/23/2009	Rick Klafka	
02	02/24/2010	Jim Bicknell	Update SOP to changes after the pre-startup operations.

APPROVED BY	SIGNATURE
Director of Manufacturing	<i>Joseph A. Kern</i>

**PURPOSE:**

To outline all steps for the grafting procedural portion of the newly established dough line at the ATI Queen Avenue facility.

**OPERATOR:**

All Production Operators and Maintenance Technicians cooking at the Queen Avenue facility.

**RELATED POLICY:**

**RELATED PROCEDURE(S):**

- 300-02-0100 – Pre-startup Cook Introduction
- 300-02-0101 – Starch Hydration
- 300-02-0102 – Starch Activation
- 300-02-0104 – Saponification

**EXHIBIT(S):**

- 
1. Grafting may begin once the required starch activation time has concluded (See: 300-02-0102 - Starch Activation).
  2. Verify the graft reactor is empty using the graft reactor weight transmitter, WT-12501. The gross weight should be around 1500 lbs.
  3. Open the activated starch reactor outlet valve, FV-12302.
  4. Reset the activated starch flow transmitter, FT-12321 totalizer.
  5. Reset the acrylonitrile flow transmitter, FT-12411 totalizer.
  6. Set the activated starch reactor outlet pump, PU-1232, to 30Hz and turn the pump on.
  7. Set the starch and acrylonitrile mixer, MX-1240, to 10Hz and turn the mixer on.
  8. Verify flow using the activated starch flow transmitter, FT-12321, and activated starch reactor weight transmitter, WT-12301. Transmitter should show that the weight is decreasing.

9. Verify flow into the graft reactor using the graft reactor weight transmitter, WT-12501. With the pump running there will be a short delay after which the transmitter will show the weight increasing.
10. Set the activated starch reactor outlet pump, PU-1232, to 60Hz.
11. Open the starch and acrylonitrile mixer – acrylonitrile isolation valve, FV-12411.
12. Use the graph on the graft-batching display to monitor the mix. Routinely adjust the speed of the acrylonitrile pump, PU-1241, to make the acrylonitrile added thus far (trended on the graph in red) match the acrylonitrile target (trended in white). Speeds between 4Hz and 8Hz should be considered targets.

**CAUTION:** Do not allow the acrylonitrile flow rate, measured by acrylonitrile flow transmitter, FT-12411, to exceed 9.5gpm as the maximum measurable rate on this transmitter is 10gpm.

13. When the acrylonitrile added (trended in red) reaches the acrylonitrile required (trended in yellow) turn off the acrylonitrile pump, PU-1241.
14. Verify that the pump is a zero (0) speed.
15. Close the starch and acrylonitrile mixer –acrylonitrile isolation valve, FV-12402.
16. Allow the remaining starch in the activated starch reactor to run. The activated starch reactor may be considered “empty” when:
  - a. The starch flow, as measured by the activated starch flow transmitter, FT-12321, decreases dramatically, and;
  - b. When the tank’s gross weight, as measured by the activated starch reactor weight transmitter, WT-12301, reaches about 250 pounds.

When this occurs turn off the activated starch reactor outlet pump, PU-1232.

17. Verify that the pump is at zero (0) speed.
18. Close the activated starch reactor outlet valve FV-12302.
19. Reset the graft area water flow transmitter, FT-12011, totalizer.
20. Open the starch and acrylonitrile mixer flush valve, FV-12405.
21. Using approximately 100lbs. of flush water flush the lines out. The flush water can be measured using the graft area water flow transmitter, FT-12011.

22. Close the starch and acrylonitrile mixer flush valve, FV-12405, when the flush is complete.
23. Turn off the starch and acrylonitrile mixer, MX-1240.
24. Allow the graft to react for a minimum of two (2) hours while agitating at 10 Hz.
25. Continue to the *Saponification* operating procedure.



## **Appendix C: Saponification Reactor Procedures**

CTN'd

300-02-0104.02  
Saponification  
Release Date: 02/24/2010  
Next Review Date: 02/23/11



# SAPONIFICATION

## Standard Operating Procedure

Revisions:	Date:	Author:	Changes or comments:
01	09/23/2009	Rick Klafka	
02	02/24/2010	Jim Bicknell	Changes to bring procedure from Pre-startup to Standard Operations.

APPROVED BY	SIGNATURE
Director of Manufacturing	<i>Joseph A. Kamm</i>

Printed Documents are obsolete 24 hours after this time and date:

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3/3/2010 10:16 AM

**PURPOSE:**

To outline all steps for the saponification procedural portion of the newly established dough line at the ATI Queen Avenue facility.

**OPERATOR:**

All Production Operators cooking at the Queen Avenue facility.

**RELATED POLICY:**

**RELATED PROCEDURE(S):**

- 300-02-0100 – Pre-startup Cook Introduction
- 300-02-0101 – Starch Hydration
- 300-02-0102 – Starch Activation
- 300-02-0103 – Grafting

**EXHIBIT(S):**

**Note:**

Ensure graft reaction time is complete before beginning this procedure.

1. Verify Saponification Reactor "B" is empty.
2. Verify that Saponification Reactor "B" door is closed.
3. Verify that the ammonia scrubber is operating.
4. Set Saponification Reactor "B" ribbon agitator, MX-1301B, to 60Hz and turn on the agitator.
5. Purge the steam line to clean the saponification reactor:
  - a. Open the Saponification Reactor "B" temperature control valve, TCV-13004B, to 10%.
  - b. Keep the valve at this setting for approx 15 seconds. This will prevent hammering in the following step.
  - c. Set the valve to 100% open.

- d. Allow steam to blast into the reactor for 15 seconds.
- e. Close Saponification Reactor "B" temperature control valve, TCV-13004B.
- 6. Open Saponification Reactor "B" drop door to drop residual material into the hopper below.
- 7. Allow the drop door to remain open and the ribbon agitator to run for approximately one minute.
- 8. Close the Saponification Reactor "B" drop door and visually verify it has closed securely.
- 9. Turn off Saponification Reactor "B" ribbon agitator, MX-1301B.
- 10. Open graft reactor outlet valve, FV-12502.
- 11. Open Saponification Reactor "B" graft valve, FV-13001B.
- 12. Set graft reactor agitator, MX-1251, to 5 Hz.
- 13. Set graft reactor-outlet pump, PU-1252, to 30Hz, and turn on the pump. This will begin the graft transfer into Saponification Reactor "B".
- 14. Verify flow out of the graft reactor using graft reactor weight transmitter, WT-12501. The weight should be steadily decreasing.
- 15. Set graft reactor outlet pump, PU-1252, to 60Hz.
- 16. The graft transfer into the Saponification Reactor will take approx 15 minutes. The graft reactor should be considered "empty" when the gross weight, as measured by graft reactor weight transmitter, WT-12501, ceases to decrease by any significant amount. Final reading should be around 1500 lbs.
- 17. Turn off graft reactor outlet pump, PU-1252.
- 18. Verify pump speed is zero (0).
- 19. Close graft reactor outlet valve, FV-12502.
- 20. Close Saponification Reactor "B" graft valve, FV-13001B.
- 21. Verify that the Potassium Hydroxide Tank contains at least 800lbs. (70 gal).

22. Set Saponification Reactor "B" ribbon agitator, MX-1301B, to 60Hz, and turn on the agitator.
23. Reset potassium hydroxide flow transmitter, FT-13132 totalizer.
24. Open Saponification Reactor "B" potassium hydroxide valve, FV-13003B.
25. Open potassium hydroxide tank outlet valve, FV-13102.
26. Turn on potassium hydroxide tank outlet pump, PU-1313. Caustic will begin pumping at this time.
27. Pump exactly 680 lbs. of caustic into the saponification reactor. The amount added is measured by potassium hydroxide flow transmitter, FT-13132. Stop caustic flow by turning off the pump.
28. Close Saponification Reactor "B" potassium hydroxide valve, FV-13003B.
29. Close potassium hydroxide tank outlet valve, FV-13102.
30. To begin heating the saponification reactor, open Saponification Reactor "B" temperature control valve, TCV-13004A, to 30%. The temperature is measured via Saponification Reactor "B" temperature element #1, TT-13001B, and element #2, TT-13002B.

**Note:** If improper grafting has occurred a reactor boil-over is possible. If boil-over occurs it will happen when the saponification reactor is in the 170 to 200°F range.

Beginning boil-over is evident by the discharge of small amounts of red material out of the indirect vent on top of the saponification reactor.

In the case of a boil-over: Close Saponification Reactor "B" temperature control valve, TCV-13004B, immediately.

31. A normal saponification reaction will get to a temperature in excess of 210°F and will reach a plateau. Let it sit for one (1) hour. Use the graph on the saponification display to help identify the plateau.
32. At the end of the hour, close Saponification Reactor "B" temperature control valve, TCV-13004A.
33. Verify the acid tote (located outside next to the containment area) contains at least 300lbs. (20gal).

34. Reset phosphoric acid flow transmitter, FT-13232 totalizer.
35. Open Saponification Reactor "B" phosphoric acid valve, FV-13002B.
36. Open phosphoric acid tank outlet valve, FV-13202.
37. Turn on phosphoric acid tank outlet pump, PU-1322. Acid will begin pumping at this time.
38. Pump between 130 and 160 lbs. of acid into the Saponification Reactor. The amount added is measured by phosphoric acid flow transmitter, FT-13232. Stop the acid by turning off the pump.
39. Close Saponification Reactor "B" phosphoric acid valve, FV-13002B.
40. Close phosphoric acid tank outlet valve, FV-13202.
41. Allow the acid to mix into the dough for at least ten (10) minutes.
42. Turn off Saponification Reactor "B" ribbon agitator, MX-1301B, and lock-out/tag-out the motor at the MCC.
43. Use the provided equipment to obtain a small dough sample from the saponification reactor.
44. Obtain a pH measurement of the dough sample. Allow approx 5 to 10 minutes for the temperature compensation of the probe to take full effect.
45. The final pH must lie between 7 and 8. If the pH is below 8, proceed to step 46. If not, unlock and reactivate Saponification Reactor "B" ribbon agitator, MX-1301B. Repeat steps 39-49 as needed but do not let the pH fall below 7.
46. When the dough is neutralized: Open the Saponification Reactor "B" drop door. The dough will fall into the hopper below.
47. After a short delay, to allow the majority of the dough to fall on its own, turn on Saponification Reactor "B" ribbon agitator, MX-1301B, to force the residual out of the reactor.
48. Allow the ribbon agitator to run for five (5) minutes.
49. Turn off the agitator.



**PPVinc**  
WASTE WATER SOLUTIONS

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Fax: (503) 261-9900

57361 P

**Plant Receiving Manifest**

**Certificate of Disposal**

<b>Generator</b>	Generator Name: <u>RCC</u>		Bill to Customer				
	Location Address:		Name <u>RCC</u>				
	Mailing Address:		Address:				
	City / State / Zip: <u>Port CO</u>		City / State / Zip:				
	Phone:		Phone:		PO#		
<b>Waste Profile</b>	Profile #	Waste Description	Quantity	Unit	This form to be completed by the Hauler of Nonhazardous wastes. The completed form must be presented at the disposal site prior to disposal. HAZARDOUS AND TSCA WASTE MAY NOT BE DISPOSED OF AT ANY DISPOSAL SITE. Violation of this restriction could subject you to revocation of your disposal permit. Answer all questions (please print).		
		<u>Alc Scordant Pellets w/ Water</u>	<u>3540</u>	<u>gal</u>			
NOTE: NON-CONFORMING WASTE MATERIALS NOT CONSISTENT WITH ESTABLISHED PROFILE MAY INCUR ADDITIONAL PROCESSING FEES.							
<b>Transporter</b>	Company Name / Address		I certify that the information supplied on this manifest is true, that it accurately describes the vehicle, waste and source(s) of the waste presented at the time of submission, and that the waste consists SOLELY of the non-hazardous wastes listed above to the best of my knowledge.	<b>Disposal Site</b>	PPV, Inc.		
	<u>RCC</u>				4927 NW Front Ave.		
	<u>Port CO</u>				Portland, OR 97210		
	Driver Signature	Date			Time	Analyst's Signature	Date Time
	Print or Type Name	Date			Time	Print or Type Name	Date Time
<b>Screening</b>	Microtox Toxicity Screening Results		PPV Wastewater Centrifuge Sampling				
	Sample No.: _____	Waste Subcategory: _____	Waste Stream	Time Collected	Oil Phase	Liquid Phase	Sludge / Solids
	PCB: <u>ND</u>	A <input checked="" type="radio"/> B <input type="radio"/> C <input type="radio"/> Non-Reg	<u>IND</u>	<u>5:05</u>	<u>0%</u>	<u>70%</u>	<u>30%</u>
	PH: <u>7</u>						
	Pass? <u>yes</u>	Reason for Rejection:	Comments _____				
Truck Information							
Capacity (gallons) _____							
Truck License No: _____							



**PPVinc**  
WASTE WATER SOLUTIONS

4927 NW Front Ave.  
Portland, OR 97210  
Phone: (503) 261-9800  
Fax: (503) 261-9900

58809 P

**Plant Receiving Manifest**

**Certificate of Disposal**

<b>Generator</b>	Generator Name: <u>RCE</u>		Bill to Customer						
	Location Address:		Name <u>RCE</u>						
	Mailing Address:		Address:						
	City / State / Zip: <u>Lane Co.</u>		City / State / Zip:						
	Phone:		Phone:		PO#				
<b>Waste Profile</b>	Profile #	Waste Description	Quantity	Unit	This form to be completed by the Hauler of Nonhazardous wastes. The completed form must be presented at the disposal site prior to disposal. HAZARDOUS AND TSCA WASTE MAY NOT BE DISPOSED OF AT ANY DISPOSAL SITE. Violation of this restriction could subject you to revocation of your disposal permit. Answer all questions (please print).				
		<u>Storm Water from</u>	<u>1350</u>	<u>CAL</u>					
		<u>Carbon Based</u>							
NOTE: NON-CONFORMING WASTE MATERIALS NOT CONSISTENT WITH ESTABLISHED PROFILE MAY INCUR ADDITIONAL PROCESSING FEES.									
<b>Transporter</b>	Company Name / Address		I certify that the information supplied on this manifest is true, that it accurately describes the vehicle, waste and source(s) of the waste presented at the time of submission, and that the waste consists SOLELY of the non-hazardous wastes listed above to the best of my knowledge.	<b>Disposal Site</b>	PPV, Inc.				
	<u>RCE</u>				4927 NW Front Ave.				
	<u>112613 5:00P</u>				<u>112613 5:00P</u>				
	Driver Signature	Date			Time	Analyst's Signature	Date	Time	
<b>Screening</b>	Print or Type Name		Date	Time	Print or Type Name		Date	Time	
<b>Screening</b>	Microtox Toxicity Screening Results				PPV Wastewater Centrifuge Sampling				
	Sample No.: _____		Waste Subcategory: _____		Waste Stream	Time Collected	Oil Phase	Liquid Phase	Sludge / Solids
	PCB: <u>NO</u>		A <u>(B)</u> C Non-Reg		<u>TWO</u>	<u>500P</u>	<u>---</u>	<u>95%</u>	<u>5%</u>
	PH: <u>7</u>								
	Pass? <u>YES</u>		Reason for Rejection:		Comments _____				
Truck Information									
Capacity (gallons) _____									
Truck License No: _____									



**PPVinc**  
WASTE WATER SOLUTIONS

4927 NW Front Ave.  
Portland, OR 97210  
Phone: (503) 261-9800  
Fax: (503) 261-9900

50850 P

Plant Receiving Manifest

Certificate of Disposal

Generator	Generator Name: <u>Rce</u>		Bill to Customer				
	Location Address:		Name <u>Rce</u>				
	Mailing Address:		Address:				
	City / State / Zip: <u>1000 CO</u>		City / State / Zip:				
	Phone:		Phone:		PO#		
Waste Profile	Profile #	Waste Description		Quantity	Unit	<small>This form to be completed by the Hauler of Nonhazardous wastes. The completed form must be presented at the disposal site prior to disposal. HAZARDOUS AND TSCA WASTE MAY NOT BE DISPOSED OF AT ANY DISPOSAL SITE. Violation of this restriction could subject you to revocation of your disposal permit. Answer all questions (please print).</small>	
		<u>Storage water</u>		<u>5,627</u>	<u>EB</u>		
					<u>Gal</u>		
NOTE: NON-CONFORMING WASTE MATERIALS NOT CONSISTENT WITH ESTABLISHED PROFILE MAY INCUR ADDITIONAL PROCESSING FEES.							
Transporter	Company Name / Address		I certify that the information supplied on this manifest is true, that it accurately describes the vehicle, waste and source(s) of the waste presented at the time of submission, and that the waste consists SOLELY of the non-hazardous wastes listed above to the best of my knowledge.	Disposal Site	PPV, Inc. 4927 NW Front Ave. Portland, OR 97210		
	Driver Signature <u>[Signature]</u> Date <u>11/27/10</u> Time <u>4:00</u>				Analyst's Signature <u>[Signature]</u> Date Time <u>11/27/10 4:00</u>		
	Print or Type Name <u>[Signature]</u> Date <u>11/27/10</u> Time <u>4:00</u>				Print or Type Name <u>[Signature]</u> Date Time <u>11/27/10 4:00</u>		
Screening	Microtox Toxicity Screening Results		PPV Wastewater Centrifuge Sampling				
	Sample No.: <u>10</u>	Waste Subcategory: <u>A B C</u> Non-Reg	Waste Stream	Time Collected	Oil Phase	Liquid Phase	Sludge / Solids
	PCB: <u>7</u>		<u>IND</u>	<u>4:00</u>	<u>—</u>	<u>100%</u>	<u>—</u>
	PH: <u>7</u>						
	Pass? <u>1/10</u>	Reason for Rejection: <u>3</u>	Comments <u>214</u>				
Truck Information							
Capacity (gallons)							
Truck License No: <u>214</u>							



**PPVinc**  
WASTE WATER SOLUTIONS

4927 NW Front Ave.  
Portland, OR 97210  
Phone: (503) 261-9800  
Fax: (503) 261-9900

✓  
58830 P

**Plant Receiving Manifest**

**Certificate of Disposal**

<b>Generator</b>	Generator Name: <u>RCE</u>		Bill to Customer			
	Location Address:		Name <u>RCE</u>			
	Mailing Address:		Address:			
	City / State / Zip: <u>Lane Co.</u>		City / State / Zip:			
<b>Waste Profile</b>	Phone:		Phone:		PO#	
	Profile #	Waste Description	Quantity	Unit	<small>This form to be completed by the Hauler of Nonhazardous wastes. The completed form must be presented at the disposal site prior to disposal. HAZARDOUS AND TSCA WASTE MAY NOT BE DISPOSED OF AT ANY DISPOSAL SITE. Violation of this restriction could subject you to revocation of your disposal permit. Answer all questions (please print).</small>	
		<u>Storm Water from Catch</u>	<u>5,380</u>	<u>GAL</u>		
		<u>Basin</u>				
<b>NOTE: NON-CONFORMING WASTE MATERIALS NOT CONSISTENT WITH ESTABLISHED PROFILE MAY INCUR ADDITIONAL PROCESSING FEES.</b>						
<b>Transporter</b>	Company Name / Address		I certify that the information supplied on this manifest is true, that it accurately describes the vehicle, waste and source(s) of the waste presented at the time of submission, and that the waste consists SOLELY of the non-hazardous wastes listed above to the best of my knowledge.	Disposal Site	PPV, Inc. 4927 NW Front Ave. Portland, OR 97210	
	<u>RCE</u>				<u>11-27-13 11:00A</u>	
	Driver Signature	Date Time			Analyst's Signature	Date Time
	<u>[Signature]</u>				<u>[Signature]</u>	
Print or Type Name		Date Time	Print or Type Name		Date Time	
<b>Screening</b>	Microtox Toxicity Screening Results		PPV Wastewater Centrifuge Sampling			
	Sample No.: _____	Waste Subcategory: _____	Waste Stream	Time Collected	Oil Phase	Liquid Phase
	PCB: <u>NO</u>	A <u>(B)</u> C Non-Reg	<u>IND</u>	<u>11:00A</u>	<u>---</u>	<u>100%</u>
	PH: <u>7</u>					
	Pass? <u>YES</u>	Reason for Rejection: _____	Comments _____			
	Truck Information					
Capacity (gallons) _____						
Truck License No: <u>274</u>						



**PPVinc**  
WASTE WATER SOLUTIONS

4927 NW Front Ave.  
Portland, OR 97210  
Phone: (503) 261-9800  
Fax: (503) 261-9900

57298 P

# Plant Receiving Manifest

## Certificate of Disposal

Generator	Generator Name:	RCE		Bill to Customer	
	Location Address:	RCE		Name:	RCE
	Mailing Address:	LINN CO.		Address:	RCE
	City / State / Zip:			City / State / Zip:	
	Phone:			Phone:	PO#
Waste Profile	Profile #	Waste Description		Quantity	Unit
		STORM WATER FROM		5460	625
		STORM VAULT			
NOTE: NON-CONFORMING WASTE MATERIALS NOT CONSISTENT WITH ESTABLISHED PROFILE MAY INCUR ADDITIONAL PROCESSING FEES.					
Transporter	Company Name / Address		I certify that the information supplied on this manifest is true, that it accurately describes the vehicle, waste and source(s) of the waste presented at the time of submission, and that the waste consists SOLELY of the non-hazardous wastes listed above to the best of my knowledge.	Disposal Site	PPV, Inc.
	RCE				4927 NW Front Ave.
	11/29/13 11:30A				Portland, OR 97210
	Driver Signature				Analyst's Signature
	Date	Time			Date Time
	Print or Type Name	Date	Time		Print or Type Name
Screening	Microtox Toxicity Screening Results		PPV Wastewater Centrifuge Sampling		
	Sample No.:	Waste Subcategory:	Waste Stream	Time Collected	Oil Phase
	PCB: NO	A B C Non-Reg	NO	11:30A	NO
	PH: 7.5				
	Pass? YES	Reason for Rejection:			
	Truck Information		Comments		
	Capacity (gallons)				
	Truck License No: 214				



**PPVinc**  
WASTE WATER SOLUTIONS

4927 NW Front Ave.  
Portland, OR 97210  
Phone: (503) 261-9800  
Fax: (503) 261-9900

57308 P

**Plant Receiving Manifest**

**Certificate of Disposal**

<b>Generator</b>	Generator Name:		Bill to Customer			
	Location Address:		Name			
	Mailing Address:		Address:			
	City / State / Zip:		City / State / Zip:			
	Phone:		Phone:			
<b>Waste Profile</b>	Profile #	Waste Description	Quantity	Unit	This form to be completed by the Hauler of Nonhazardous wastes. The completed form must be presented at the disposal site prior to disposal. HAZARDOUS AND TSCA WASTE MAY NOT BE DISPOSED OF AT ANY DISPOSAL SITE. Violation of this restriction could subject you to revocation of your disposal permit. Answer all questions (please print).	
		STORM WATER + ROM	5400	5400		
		STORM VAULT				
NOTE: NON-CONFORMING WASTE MATERIALS NOT CONSISTENT WITH ESTABLISHED PROFILE MAY INCUR ADDITIONAL PROCESSING FEES.						
<b>Transporter</b>	Company Name / Address		I certify that the information supplied on this manifest is true, that it accurately describes the vehicle, waste and source(s) of the waste presented at the time of submission, and that the waste consists SOLELY of the non-hazardous wastes listed above to the best of my knowledge.	Disposal Site	PPV, Inc.	
	RCE				4927 NW Front Ave.	
					Portland, OR 97210	
	Driver Signature	Date	Time		Analyst's Signature	
	Print or Type Name	Date	Time		Print or Type Name	
<b>Screening</b>	Microtox Toxicity Screening Results		PPV Wastewater Centrifuge Sampling			
	Sample No.:	Waste Subcategory:	Waste Stream	Time Collected	Oil Phase	Liquid Phase
	PCB: NO	A B C Non-Reg	NO	5:10 PM	0	95%
	PH: 7					
	Pass? YES	Reason for Rejection:	Comments: 24 ER RATE			
	Truck Information					
	Capacity (gallons)					
	Truck License No:					



**PPVinc**  
WASTE WATER SOLUTIONS

4927 NW Front Ave.  
Portland, OR 97210  
Phone: (503) 261-9800  
Fax: (503) 261-9900

57320 P

Plant Receiving Manifest

Certificate of Disposal

Generator	Generator Name:			Bill to Customer		
	Location Address:	RCE		Name		
	Mailing Address:			Address: RCE		
	City / State / Zip:	LINN CO		City / State / Zip:		
	Phone:			Phone: PO#		
Waste Profile	Profile #	Waste Description		Quantity	Unit	
		STORM WATER FROM		4400	GAL	
		STORM VAULT				
NOTE: NON-CONFORMING WASTE MATERIALS NOT CONSISTENT WITH ESTABLISHED PROFILE MAY INCUR ADDITIONAL PROCESSING FEES.						
Transporter	Company Name / Address		I certify that the information supplied on this manifest is true, that it accurately describes the vehicle, waste and source(s) of the waste presented at the time of submission, and that the waste consists SOLELY of the non-hazardous wastes listed above to the best of my knowledge.	Disposal Site	PPV, Inc.	
	RCE				4927 NW Front Ave.	
	11/30/13 12:30 PM				Portland, OR 97210	
	Driver Signature Date Time				Analyst's Signature Date Time	
	Print or Type Name Date Time				Print or Type Name Date Time	
Screening	Microtox Toxicity Screening Results			PPV Wastewater Centrifuge Sampling		
	Sample No.:	Waste Subcategory:		Waste Stream	Time Collected	Oil Phase
	PCB: 40	A B C Non-Reg		NO	12:30 PM	0
	PH: 4					
	Pass? 10	Reason for Rejection:				
	Truck Information			Comments		
	Capacity (gallons)					
Truck License No:						

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>ORD 980984314</b>		Manifest Document No. <b>18773</b>		2. Page 1 <b>1 of 1</b>	
3. Generator's Name and Mailing Address <b>Parmer Absorbent Technologies 140 Queen Ave SW Albany, Or 97322</b>							
4. Generator's Phone <b>(503) 224-3206</b>							
5. Transporter 1 Company Name <b>WasteXpress</b>		6. US EPA ID Number <b>ORQ 000023150</b>		A. State Transporter's ID <b>881002</b>			
7. Transporter 2 Company Name		8. US EPA ID Number		B. Transporter 1 Phone <b>(503) 224-3206</b>			
9. Donor Facility Name and Site Address <b>FROM 11618 N Lombard St. Portland, OR 97203</b>		10. US EPA ID Number <b>ORQ 000011643</b>		C. State Transporter's ID			
				D. Transporter 2 Phone			
				E. State Facility's ID			
				F. Facility's Phone <b>(503) 224-3206</b>			
11. WASTE DESCRIPTION				12. Containers		13. Total Quantity	
				No. Type		Unit	
						Wt./Vol.	
a. non Regulated material, Solid, N.O.S. Absorbant Polymers				8 DM		400 G	
b. non Regulated material, Liquid, NOS (Rinse Water)				1 DM		40 G	
c. non Regulated Liquids				2 TP		400 G	
d. non Regulated material, Solid, N.O.S. PPE + debris				1 BA		25 P	
G. Additional Descriptions for Materials Listed Above				H. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information							
16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.							
Printed/Typed Name <b>Ben Muraw</b>				Signature <i>[Signature]</i>		Date <b>12/17/13</b>	
17. Transporter 1 Acknowledgement of Receipt of Materials							
Printed/Typed Name <b>Tracy Whitman</b>				Signature <i>[Signature]</i>		Date <b>12/17/13</b>	
18. Transporter 2 Acknowledgement of Receipt of Materials							
Printed/Typed Name				Signature		Date	
19. Discrepancy Indication Space							
20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in item 19.							
Printed/Typed Name				Signature		Date	

NON-HAZARDOUS WASTE

# NON-HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12 pitch) typewriter)

<b>NON-HAZARDOUS WASTE MANIFEST</b>		1. Generator's US EPA ID No. <b>ORD980984314</b>		Manifest Document No. <b>18773</b>		2. Page 1 of 1	
3. Generator's Name and Mailing Address <b>Former Absorbant technologies Inc 140 Queen Ave SW Albany OR 97322</b>							
4. Generator's Phone ( ) <b>Albany OR 97322</b>							
5. Transporter 1 Company Name <b>Wustexpress</b>		6. US EPA ID Number <b>ORQ0000023150</b>		A. State Transporter's ID <b>881002</b>			
7. Transporter 2 Company Name		8. US EPA ID Number		B. Transporter 1 Phone <b>503 224 3206</b>			
				C. State Transporter's ID			
				D. Transporter 2 Phone			
9. Designated Facility Name and Site Address <b>Chemical Waste Management NW 17629 Cedar Springs Lane Arlington OR 97812</b>		10. US EPA ID Number <b>ORD089452353</b>		E. State Facility's ID			
				F. Facility's Phone <b>541 454 2643</b>			
11. WASTE DESCRIPTION				12. Containers		13. Total Quantity	
				No. Type		Unit Wt./Vol.	
a. <b>non Regulated material, Liquid, NQS (Grift Reactor)</b>				1 1 DM		50 6	
b.							
c.							
d.							
G. Additional Descriptions for Materials Listed Above				H. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information							
16. GENERATOR'S CERTIFICATION: I hereby certify that the contents of this shipment are fully and accurately described and are in all respects in proper condition for transport. The materials described on this manifest are not subject to federal hazardous waste regulations.							
Printed/Typed Name <b>Ben McLean</b>				Signature <i>[Signature]</i>		Date <b>12/17/13</b>	
17. Transporter 1 Acknowledgement of Receipt of Materials							
Printed/Typed Name <b>Tracy Whrtman</b>				Signature <i>[Signature]</i>		Date <b>12/17/13</b>	
18. Transporter 2 Acknowledgement of Receipt of Materials							
Printed/Typed Name				Signature		Date	
19. Discrepancy Indication Space							
20. Facility Owner or Operator; Certification of receipt of the waste materials covered by this manifest, except as noted in Item 19.							
Printed/Typed Name				Signature		Date	

NON-HAZARDOUS WASTE

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number				
		OKD 714314	1	505 224 2006	006738184 FLE				
5. Generator's Name and Mailing Address FARMER, JAMES E. JR. 140 S. 14th St. Arlington, VA 22204 Generator's Site Address (if different than mailing address) Arlington, VA 22204									
6. Generator's Phone: 703 224 2006									
6. Transporter 1 Company Name NAC Environmental Inc.					U.S. EPA ID Number OKD 714314				
7. Transporter 2 Company Name					U.S. EPA ID Number				
8. Designated Facility Name and Site Address FARMER, JAMES E. JR. 140 S. 14th St. Arlington, VA 22204					U.S. EPA ID Number				
Facility's Phone: 703 224 2006									
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))			10. Containers	11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
					No.	Type			
	1	H226, H252, H302, H312, H332, H410, H501, H502, H503, H504, H505, H506, H507, H508, H509, H510, H511, H512, H513, H514, H515, H516, H517, H518, H519, H520, H521, H522, H523, H524, H525, H526, H527, H528, H529, H530, H531, H532, H533, H534, H535, H536, H537, H538, H539, H540, H541, H542, H543, H544, H545, H546, H547, H548, H549, H550, H551, H552, H553, H554, H555, H556, H557, H558, H559, H560, H561, H562, H563, H564, H565, H566, H567, H568, H569, H570, H571, H572, H573, H574, H575, H576, H577, H578, H579, H580, H581, H582, H583, H584, H585, H586, H587, H588, H589, H590, H591, H592, H593, H594, H595, H596, H597, H598, H599, H600, H601, H602, H603, H604, H605, H606, H607, H608, H609, H610, H611, H612, H613, H614, H615, H616, H617, H618, H619, H620, H621, H622, H623, H624, H625, H626, H627, H628, H629, H630, H631, H632, H633, H634, H635, H636, H637, H638, H639, H640, H641, H642, H643, H644, H645, H646, H647, H648, H649, H650, H651, H652, H653, H654, H655, H656, H657, H658, H659, H660, H661, H662, H663, H664, H665, H666, H667, H668, H669, H670, H671, H672, H673, H674, H675, H676, H677, H678, H679, H680, H681, H682, H683, H684, H685, H686, H687, H688, H689, H690, H691, H692, H693, H694, H695, H696, H697, H698, H699, H700, H701, H702, H703, H704, H705, H706, H707, H708, H709, H710, H711, H712, H713, H714, H715, H716, H717, H718, H719, H720, H721, H722, H723, H724, H725, H726, H727, H728, H729, H730, H731, H732, H733, H734, H735, H736, H737, H738, H739, H740, H741, H742, H743, H744, H745, H746, H747, H748, H749, H750, H751, H752, H753, H754, H755, H756, H757, H758, H759, H760, H761, H762, H763, H764, H765, H766, H767, H768, H769, H770, H771, H772, H773, H774, H775, H776, H777, H778, H779, H780, H781, H782, H783, H784, H785, H786, H787, H788, H789, H790, H791, H792, H793, H794, H795, H796, H797, H798, H799, H800, H801, H802, H803, H804, H805, H806, H807, H808, H809, H810, H811, H812, H813, H814, H815, H816, H817, H818, H819, H820, H821, H822, H823, H824, H825, H826, H827, H828, H829, H830, H831, H832, H833, H834, H835, H836, H837, H838, H839, H840, H841, H842, H843, H844, H845, H846, H847, H848, H849, H850, H851, H852, H853, H854, H855, H856, H857, H858, H859, H860, H861, H862, H863, H864, H865, H866, H867, H868, H869, H870, H871, H872, H873, H874, H875, H876, H877, H878, H879, H880, H881, H882, H883, H884, H885, H886, H887, H888, H889, H890, H891, H892, H893, H894, H895, H896, H897, H898, H899, H900, H901, H902, H903, H904, H905, H906, H907, H908, H909, H910, H911, H912, H913, H914, H915, H916, H917, H918, H919, H920, H921, H922, H923, H924, H925, H926, H927, H928, H929, H930, H931, H932, H933, H934, H935, H936, H937, H938, H939, H940, H941, H942, H943, H944, H945, H946, H947, H948, H949, H950, H951, H952, H953, H954, H955, H956, H957, H958, H959, H960, H961, H962, H963, H964, H965, H966, H967, H968, H969, H970, H971, H972, H973, H974, H975, H976, H977, H978, H979, H980, H981, H982, H983, H984, H985, H986, H987, H988, H989, H990, H991, H992, H993, H994, H995, H996, H997, H998, H999, H1000			01	TT	2142	g	1572
	2.								
	3.								
4.									
14. Special Handling Instructions and Additional Information OK 323541									
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.									
Generator's/Offor's Printed/Typed Name Signature Month Day Year									
TRANSPORTER INTL	16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:								
	Transporter signature (for exports only):								
	17. Transporter Acknowledgment of Receipt of Materials								
	Transporter 1 Printed/Typed Name Signature Month Day Year								
DESIGNATED FACILITY	Transporter 2 Printed/Typed Name Signature Month Day Year								
	18. Discrepancy								
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
	Manifest Reference Number: U.S. EPA ID Number								
18b. Alternate Facility (or Generator) Facility's Phone: U.S. EPA ID Number									
18c. Signature of Alternate Facility (or Generator) Month Day Year									
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)									
1. 2. 3. 4.									
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a Printed/Typed Name Signature Month Day Year									

DESIGNATED FACILITY

THE HAZARDOUS WASTES IDENTIFIED ON THE HAZARDOUS WASTE MANIFEST IDENTIFIED ABOVE AND BEARING THE EPA HAZARDOUS WASTE CODES LISTED BELOW ARE RESTRICTED WASTES WHICH ARE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT UNDER THE LAND DISPOSAL RESTRICTIONS, 40 CFR PART 268.7 (a)(2), AND RCRA SECTION 3004(D). IN ACCORDANCE WITH 40 CFR 268.7(a), THE EPA WASTE CODE, WASTE SUBCATEGORY, AND TREATABILITY GROUPS, AS APPLICABLE, ARE INCLUDED BELOW.

INSTRUCTIONS -- COMPLETE ALL SECTIONS. REFER TO PAGE 3 OF THIS FORM FOR KEY TERMS/DEFINITIONS.

- Column 1 - Line Item: Enter the manifest line item number (e.g., 11a) that corresponds to the waste code(s).  
Column 2 - Waste Codes/Subcategory: Check off all applicable waste codes. For D001 through D043, also check applicable subcategory; for F001 through F005, check applicable constituents.  
Column 3 - Wastewater/Non-wastewater: Check off "WW" for wastewater and "Non-WW" for non-wastewaters.  
Column 4 - LDR Handling Code: Circle the appropriate handling code, as follows:
- 1 = The waste is a characteristic hazardous waste D001, D002, D003, D004-D011, or D018-43 which is intended for treatment/disposal in a CWA system, CWA-equivalent system, or Class I SDWA system. Underlying Hazardous Constituents (UHC's) are NOT required to be identified.
  - 1A = The waste is a characteristic hazardous waste D001 High TOC Ignitable Liquids Subcategory (i.e., greater than or equal to 10% TOC). Pursuant to 40 CFR 268.40, the waste must be treated using organic recovery (RORGs) or combustion (CMBST) technology. UHC's are NOT required to be identified.
  - 2 = The waste is a characteristic hazardous waste D001 (other than High TOC Ignitable Liquids), D002, D003 Explosive, Water Reactive or Other Reactive subcategory, D004-D011, D012-17 non-wastewater, or D018-43 which is intended for treatment/disposal in a non-CWA system, non-CWA-equivalent system, or non-Class I SDWA system located in the United States. All UHC's which are reasonably expected to be present must be identified, except for D001 waste that is intended to be treated using organic recovery (RORGs) or combustion (CMBST) technologies. Identify UHC's by completing Sections I and IV of CHI Form LDR-1 Addendum and attach completed Addendum to this form.
  - 3 = The waste is a characteristic (i.e., D-code) or listed (i.e., F, K, U, or P-code) hazardous waste which is intended for export and treatment/disposal at a facility located outside the United States. LDR treatment standards do not apply to hazardous waste treated/disposed in a foreign country, and per USEPA guidance, the identification of UHC's (if applicable) is not required for hazardous waste that is intended to be exported. Note however that if the exported waste is subsequently returned for treatment/disposal in the United States, all applicable LDR regulations would apply and a revised LDR notification would be required.
  - 4 = The waste meets the definition of hazardous debris pursuant to 40 CFR 268.2(h) and is intended for treatment/disposal in compliance with the alternate debris treatment technologies of 40 CFR 268.45. In accordance with the requirements of 40 CFR 268.7(a)(2), the contaminants subject to treatment (CSTT's) must be identified as part of this notification. Identify CSTT's by completing Section III and IV of the CHI Form LDR-1 Addendum and attach completed Addendum to this form. These constituents are being treated to comply with 40 CFR 268.45.
  - 5 = The waste is a characteristic waste D003 Reactive Sulfide, Reactive Cyanide, or Unexploded Ordnance subcategory, a characteristic waste D012-17 wastewater, or a listed (i.e., F, K, U, or P-code) hazardous waste. UHC's are NOT required to be identified.
  - 6 = The waste is a lab pack that is intended for incineration using the alternative lab pack treatment standard under 40 CFR 268.42(c). UHC's are NOT required to be identified; however, the generator must complete and attach the lab pack certification statement on CHI Form LDR-LP. Note that in accordance with 40 CFR Part 268 Appendix IV, lab packs which contain waste codes D009, F019, K003, K004, K005, K006, K062, K071, K100, K108, P010, P011, P012, P076, P078, U134, and U151 are not eligible for alternative lab pack treatment standard.

NOTE: IF THE WASTE IS A SOIL CONTAMINATED WITH A LISTED OR CHARACTERISTIC WASTE AND THE GENERATOR WANTS TO USE THE ALTERNATE TREATMENT STANDARD FOR SOILS, CONTACT CORPORATE COMPLIANCE FOR THE APPROPRIATE LDR NOTIFICATION FORM.

SECTION I. CHARACTERISTIC WASTES D001 THROUGH D043

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
<u>2</u>	<input type="checkbox"/> D001 Ignitables, except High TOC subcategory	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 5 6
<u>1</u>	<input checked="" type="checkbox"/> D001 High TOC Ignitable Liquids Subcategory (Greater than or equal to 10% TOC)	<input checked="" type="checkbox"/> Non-WW only	1A 3 6
	<input checked="" type="checkbox"/> D002 Corrosives	<input type="checkbox"/> WW <input checked="" type="checkbox"/> Non-WW	1 2 3 4 5 6
	<input type="checkbox"/> D003		
	<input type="checkbox"/> Reactive Sulfide, per 261.23 (a)(5)	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 3 4 5 6
	<input type="checkbox"/> Reactive Cyanide, per 261.23(a)(5)	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 3 4 5 6
	<input type="checkbox"/> Explosive, per 261.23(a)(6), (7) & (8)	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 6
	<input type="checkbox"/> Water Reactive, per 261.23(a)(2), (3) & (4)	<input type="checkbox"/> Non-WW only	1 2 3 4 6
	<input type="checkbox"/> Other Reactive, per 261.23(a)(1)	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 6
	<input type="checkbox"/> Unexploded Ordnance, Emergency Response	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 3 4 5 6
	<input type="checkbox"/> D004 Arsenic	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 3 4 5 6
	<input type="checkbox"/> D005 Barium	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 3 4 5 6
	<input type="checkbox"/> D006		
	<input type="checkbox"/> Cadmium	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 6
	<input type="checkbox"/> Cadmium Containing Batteries	<input type="checkbox"/> Non-WW only	2 3 6
	<input type="checkbox"/> D007 Chromium	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 6
	<input type="checkbox"/> D008		
	<input type="checkbox"/> Lead	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 6
	<input type="checkbox"/> Lead Acid Batteries	<input type="checkbox"/> Non-WW only	2 3 6

**SECTION III. CALIFORNIA LIST WASTES**

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE					
	Hazardous waste containing one or more of the following [ ] WW [ ] Non-WW California List constituents:		1	2	3	4	6	
	[ ] ALL CALIFORNIA LIST CONSTITUENTS							
	[ ] Liquids with nickel greater than or equal to 134 mg/l							
	[ ] Liquids with thallium greater than or equal to 130 mg/l							
	[ ] Liquids with PCB's > or = 50 ppm							
	[ ] Waste containing HOC's > or = 1,000 mg/kg							

**SECTION IV. OTHER LISTED WASTES (F006-12, F019-F028, F037-38, F039, K-, U-, AND P-CODES)**

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE					
		[ ] WW [ ] Non-WW	3	4	5	6		
		[ ] WW [ ] Non-WW	3	4	5	6		
		[ ] WW [ ] Non-WW	3	4	5	6		
		[ ] WW [ ] Non-WW	3	4	5	6		
		[ ] WW [ ] Non-WW	3	4	5	6		

[ ] CHECK HERE IF ADDITIONAL LISTED WASTE CODES ARE PRESENT. COMPLETE AND ATTACH LDR-1 CONTINUATION SHEET.

[ ] CHECK HERE IF WASTE CODE F039 (MULTISOURCE LEACHATE) IS PRESENT. IDENTIFY F039 CONSTITUENTS BY COMPLETING SECTIONS II AND IV OF CHI FORM LDR-1 ADDENDUM AND ATTACH COMPLETED ADDENDUM TO THIS FORM.

**SECTION V. CONTACT NAME AND DATE**

Print Name: \_\_\_\_\_ Date: \_\_\_\_\_

**KEY TERMS/DEFINITIONS**

**CLASS I SDWA SYSTEM** means a Class I deep well facility regulated under the Safe Drinking Water Act (SDWA).

**CWA SYSTEM** means a centralized wastewater treatment facility discharging under a Clean Water Act (CWA) permit. For example, a CWA facility would treat organic or inorganic aqueous wastes and discharge the treated effluent to the local sewer system. Examples of CWA treatment systems owned and operated by Clean Harbors include the wastewater treatment operations at Baltimore (including the CES system), Bristol, Chicago, Cincinnati and Cleveland.

**CWA-EQUIVALENT SYSTEM** means a "zero discharge system" that engages in "CWA-equivalent" treatment before land disposal. Zero-discharge facilities treat hazardous wastes using "CWA-equivalent" treatment methods, but do not discharge the treatment effluent to a sewer or water body (e.g., spray irrigation land farm). "CWA-equivalent" treatment methods means biological treatment for organics, alkaline chlorination, or ferrous sulfate precipitation for cyanide, precipitation/ sedimentation for metals, reduction of hexavalent chromium, or other treatment technology that can be demonstrated to perform equally or greater than these technologies.

**HIGH TOC IGNITABLE LIQUIDS SUBCATEGORY** means an ignitable liquid hazardous waste (waste code D001) which contains greater than or equal to 10% total organic carbon (TOC). Pursuant to 40 CFR 268.40, such wastes must be treated using organic recovery (RORGs) or combustion (CMBST) technology. Examples of RORGs technologies include the CES unit at Clean Harbors of Baltimore. Examples of CMBST technologies include hazardous waste fuel blending and subsequent reuse at a cement kiln, or destruction at a RCRA incinerator.

**WASTEWATERS** are wastes that contain less than 1% by weight total organic carbon (TOC) and less than 1% by weight total suspended solids (TSS). [See 40 CFR 268.2(f)]

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number	
5. Generator's Name and Mailing Address		Generator's Site Address (if different than mailing address)			005039343 FLE	
155 E. 1st St. #222 Lincoln, Nebraska 68502-4732		1400 S. 14th St. Lincoln, NE 68502-4732				
6. Transporter 1 Company Name		U.S. EPA ID Number			ORC0000023150	
7. Transporter 2 Company Name		U.S. EPA ID Number				
8. Designated Facility Name and Site Address		U.S. EPA ID Number			NED981723513	
LERRA HANCOCK'S ENVIRONMENTAL SERVICES 2247 South Hwy 71 Kimball, NE 68145 Facility's Phone: (308) 235-4012						
9a. HM	9b. U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
		No.	Type			
X	1. UN1204, Liquid, Acids, Inorganic, 3, (L), PG I	01	CF	4	P	0001 1023 0035
X	2. UN1204, Liquid, Acids, Inorganic, 3, (L), PG I	01	CF	28	P	0154 1023 0154
X	3. UN1204, Liquid, Acids, Inorganic, 3, (L), PG I	01	DF	69	P	0002
X	4. UN1204, Liquid, Acids, Inorganic, 3, (L), PG I	01	DF	8	P	0002
14. Special Handling Instructions and Additional Information						
DANGER 3CF 3DLCRA 20DF DANGER 20CF 4DLCRB 5DF JUL 19 1998						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offeror's Printed/Typed Name		Signature		Month Day Year		
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: Date leaving U.S.:						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name		Signature		Month Day Year		
Transporter 2 Printed/Typed Name		Signature		Month Day Year		
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection						
Manifest Reference Number:						
18b. Alternate Facility (or Generator) U.S. EPA ID Number						
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator) Month Day Year						
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1. 2. 3. 4.						
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name		Signature		Month Day Year		

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)		21. Generator ID Number	22. Page	23. Manifest Tracking Number		
24. Generator's Name Former Absorbent Technologies Inc		005039343 FLE	2	005039343 FLE		
25. Transporter _____ Company Name			U.S. EPA ID Number			
26. Transporter _____ Company Name			U.S. EPA ID Number			
27a. HM	27b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	28. Containers		29. Total Quantity	30. Unit Wt./Vol.	31. Waste Codes
		No.	Type			
X	UN325, Waste Corrosive Liquid, Acidic, Organic, NOS (Formic Acid, Acetic Acid), 5, PG II ERG # 153	01	DF	14	P	DCC1 DCC2
X	UN2735, Waste Aqueous Liquid, Corrosive, NOS (Benzene-1,3-Dimethylamine HAD), 5, PG II ERG # 153	01	DF	7	P	DCC2
X	UN1950, Waste Aerosols, Flammable (Cont. Not Exceeding 11.1 Gpa), 2.1 ERG # 124	01	CF	75	P	DCC1
X	UN325, Waste Toxic Liquid, Inorganic, NOS (Cobalt Chloride, Acrylonitrile), 6.1, PG II ERG # 151	01	CF	27	P	DCC2
X	UN305, Waste Environmentally Hazardous Substances, Liquid, NOS (Formic Acid), 9, PG II ERG # 171	01	CF	34	P	
X	UN317, Waste Aqueous, Inorganic, NOS, (Cyanide Nitrate), 5.1, PG II ERG # 140	01	DF	6	P	DCC1
X	UN313, Waste Oxidizing Liquid, NOS, (Potassium Permanganate, Ammonium Peroxide), 5.1, PG II ERG # 140	01	DF	11	P	DCC1
X	UN1724, Waste Aluminum Chloride, Anhydrous, 3, PG II ERG # 137	01	DF	6	P	DCC1 DCC2
X	UN177, Waste Nitrates, Inorganic, NOS (Ammonium Nitrate, Urea Solution), 5.1, PG E ERG # 140	01	DF	8	P	DCC1
32. Special Handling Instructions and Additional Information						
5) LCCR 5DF 6) LCCR 5DF 7) LCCR 5DF 8) LCCR 5DF 9) LCCR 5DF 10) LCCR 5DF 11) LCCR 5DF 12) LCCR 5DF 13) LCCR 5DF						
33. Transporter _____ Acknowledgment of Receipt of Materials		Signature		Month	Day	Year
34. Transporter _____ Acknowledgment of Receipt of Materials		Signature		Month	Day	Year
35. Discrepancy						
36. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						

THE HAZARDOUS WASTES IDENTIFIED ON THE HAZARDOUS WASTE MANIFEST IDENTIFIED ABOVE AND BEARING THE EPA HAZARDOUS WASTE CODES LISTED BELOW ARE RESTRICTED WASTES WHICH ARE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT UNDER THE LAND DISPOSAL RESTRICTIONS, 40 CFR PART 268.7 (a)(2), AND RORA SECTION 3004(D). IN ACCORDANCE WITH 40 CFR 268.7(a), THE EPA WASTE CODE, WASTE SUBCATEGORY, AND TREATABILITY GROUPS, AS APPLICABLE, ARE INCLUDED BELOW.

INSTRUCTIONS -- COMPLETE ALL SECTIONS. REFER TO PAGE 3 OF THIS FORM FOR KEY TERMS/DEFINITIONS.

- Column 1 - Line Item: Enter the manifest line item number (e.g., 11a) that corresponds to the waste code(s).  
Column 2 - Waste Codes/Subcategory: Check off all applicable waste codes. For D001 through D043, also check applicable subcategory; for F001 through F005, check applicable constituents.  
Column 3 - Wastewater/Non-wastewater: Check off "WW" for wastewater and "Non-WW" for non-wastewaters.  
Column 4 - LDR Handling Code: Circle the appropriate handling code, as follows:
- 1 = The waste is a characteristic hazardous waste D001, D002, D003, D004-D011, or D018-43 which is intended for treatment/disposal in a CWA system, CWA-equivalent system, or Class I SDWA system. Underlying Hazardous Constituents (UHC's) are NOT required to be identified.
  - 1A = The waste is a characteristic hazardous waste D001 High TOC Ignitable Liquids Subcategory (i.e., greater than or equal to 10% TOC). Pursuant to 40 CFR 268.40, the waste must be treated using organic recovery (RORGs) or combustion (CMBST) technology. UHC's are NOT required to be identified.
  - 2 = The waste is a characteristic hazardous waste D001 (other than High TOC Ignitable Liquids), D002, D003 Explosive, Water Reactive or Other Reactive subcategory, D004-D011, D012-17 non-wastewater, or D018-43 which is intended for treatment/disposal in a non-CWA system, non-CWA-equivalent system, or non-Class I SDWA system located in the United States. All UHC's which are reasonably expected to be present must be identified, except for D001 waste that is intended to be treated using organic recovery (RORGs) or combustion (CMBST) technologies. Identify UHC's by completing Sections I and IV of CHI Form LDR-1 Addendum and attach completed Addendum to this form.
  - 3 = The waste is a characteristic (i.e., D-code) or listed (i.e., F, K, U- or P-code) hazardous waste which is intended for export and treatment/disposal at a facility located outside the United States. LDR treatment standards do not apply to hazardous waste treated/disposed in a foreign country, and per USEPA guidance, the identification of UHC's (if applicable) is not required for hazardous waste that is intended to be exported. Note however that if the exported waste is subsequently returned for treatment/disposal in the United States, all applicable LDR regulations would apply and a revised LDR notification would be required.
  - 4 = The waste meets the definition of hazardous debris pursuant to 40 CFR 268.2(h) and is intended for treatment/disposal in compliance with the alternate debris treatment technologies of 40 CFR 268.45. In accordance with the requirements of 40 CFR 268.7(a)(2), the contaminants subject to treatment (CSTT's) must be identified as part of this notification. Identify CSTT's by completing Section III and IV of the CHI Form LDR-1 Addendum and attach completed Addendum to this form. These constituents are being treated to comply with 40 CFR 268.45.
  - 5 = The waste is a characteristic waste D003 Reactive Sulfide, Reactive Cyanide, or Unexploded Ordnance subcategory, a characteristic waste D012-17 wastewater, or a listed (i.e., F, K, U- or P-code) hazardous waste. UHC's are NOT required to be identified.
  - 6 = The waste is a lab pack that is intended for incineration using the alternative lab pack treatment standard under 40 CFR 268.42(c). UHC's are NOT required to be identified; however, the generator must complete and attach the lab pack certification statement on CHI Form LDR-1P. Note that in accordance with 40 CFR Part 268 Appendix IV, lab packs which contain waste codes D009, F019, K003, K004, K005, K008, K062, K071, K100, K108, P010, P011, P012, P076, P078, U134, and U151 are not eligible for alternative lab pack treatment standard.

NOTE: IF THE WASTE IS A SOIL CONTAMINATED WITH A LISTED OR CHARACTERISTIC WASTE AND THE GENERATOR WANTS TO USE THE ALTERNATE TREATMENT STANDARD FOR SOILS, CONTACT CORPORATE COMPLIANCE FOR THE APPROPRIATE LDR NOTIFICATION FORM.

SECTION I. CHARACTERISTIC WASTES D001 THROUGH D043

COLUMN 1: LINE ITEM SEE MANIFEST	COLUMN 2: WASTE CODE / SUBCATEGORY	COLUMN 3: WASTEWATER/ NON-WASTEWATER	COLUMN 4: HANDLING CODE
10, 11, 13 12, 5, 7	<input checked="" type="checkbox"/> D001 Ignitables, except High TOC subcategory <input checked="" type="checkbox"/> D001 High TOC Ignitable Liquids Subcategory (Greater than or equal to 10% TOC)	<input type="checkbox"/> WW <input checked="" type="checkbox"/> Non-WW <input checked="" type="checkbox"/> Non-WW only	1 2 3 4 5 6 1A 3 6
3, 4, 5, 6, 12 12	<input checked="" type="checkbox"/> D002 Corrosives <input checked="" type="checkbox"/> D003 <input type="checkbox"/> Reactive Sulfide, per 261.23 (a)(5) <input type="checkbox"/> Reactive Cyanide, per 261.23 (a)(6) <input type="checkbox"/> Explosive, per 261.23 (a)(6), (7) & (8) <input checked="" type="checkbox"/> Water Reactive, per 261.23 (a)(2), (3) & (4) <input type="checkbox"/> Other Reactive, per 261.23 (a)(1) <input type="checkbox"/> Unexploded Ordnance, Emergency Response	<input type="checkbox"/> WW <input checked="" type="checkbox"/> Non-WW <input type="checkbox"/> WW <input type="checkbox"/> Non-WW <input type="checkbox"/> WW <input type="checkbox"/> Non-WW <input checked="" type="checkbox"/> Non-WW only <input type="checkbox"/> WW <input type="checkbox"/> Non-WW <input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 1 2 3 4 5 6 1 3 4 5 6
	<input type="checkbox"/> D004 Arsenic	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 3 4 5 6
	<input type="checkbox"/> D005 Barium	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 3 4 5 6
	<input type="checkbox"/> D006 <input type="checkbox"/> Cadmium <input type="checkbox"/> Cadmium Containing Batteries	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW <input type="checkbox"/> Non-WW only	1 2 3 4 5 6 2 3 6
	<input type="checkbox"/> D007 Chromium	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW	1 2 3 4 5 6
	<input type="checkbox"/> D008 <input type="checkbox"/> Lead <input type="checkbox"/> Lead Acid Batteries	<input type="checkbox"/> WW <input type="checkbox"/> Non-WW <input type="checkbox"/> Non-WW only	1 2 3 4 5 6 2 3 6

50. Close the drop door on Saponification Reactor "B". At this point the saponification reactor should be empty and ready for the batch of graft.
51. Verify that you have an adequate number of Obertos available to hold the batch. A complete batch will require 5 Oberto containers.
52. Position an Oberto container on the load cell beneath the dough auger.
53. Turn on Saponification Reactor "B" outlet pump, PU-1305A on PLC screen to energize the dough auger. Turn on the manual switch at the dough auger to start the auger running. Dough will start transferring into the Oberto container at this time.
54. Stop and start auger as needed.
55. Fill an Oberto container only up to approximately 1600lbs. It is not necessary to completely evacuate the hopper. When the dough begins flowing erratically, the hopper has been depleted.
56. Set the filled Obertos in the staging area for transportation.



## **Appendix D: NRC Confined Space Entry Program**

	INJURY ILLNESS PREVENTION PROGRAM	NRC West
Procedure 16.1	Confined Space Entry / Gas Hazards	Revision: 08/2013

## 1.0 PURPOSE

The purpose of this procedure is to establish confined space entry standards for all NRC West (including NRC Environmental Services Inc.) employees and subcontractors. This procedure exceeds the guidelines contained in the Occupational Safety and Health Administration (OSHA) Permit-required Confined Spaces standard 29 CFR 1910.146 and requirements outlined in Cal OSHA Article 108 -5157.

NRC West shall enforce this procedure as a means of protecting the health and safety of workers while entering, working in, and exiting confined spaces. Before entry, the worker will be made aware of the hazards of confined space work and the safe work practices necessary.

Employees are solicited for input regarding the confined space program or any elements of it. This input can be provided during training classes or on actual confined space job sites.

## 2.0 DEFINITIONS

**2.1 Acceptable entry conditions:** The conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter into and work within the space.

**2.2 Attendant:** An individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the employer's permit space program.


**2.3 Authorized entrant:** An employee who is authorized by the employer to enter a permit space.

### 2.4 Classification of Confined Spaces

NRC West evaluates all confined spaces for potential hazards; however all spaces are considered permit-required confined spaces; specifically a permit will be used for all confined space entries.

### 2.5 Confined Space: A space that:

- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and

	INJURY ILLNESS PREVENTION PROGRAM	NRC West
Procedure 16.1	Confined Space Entry / Gas Hazards	Revision: 08/2013

- (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- (3) Is not designed for continuous employee occupancy.

2.6 Entry: The action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

2.7 Entry permit (permit): The written or printed document that is provided by the employer to allow and control entry into a permit space and that contains the information specified in paragraph (f) of this section.

2.8 Entry supervisor: The person (such as the employer, foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section. An entry supervisor also may serve as an attendant or as an authorized entrant, as long as that person is trained and equipped as required for each role he or she fills. Also, the duties of entry supervisor may be passed from one individual to another during the course of an entry operation.

2.9 Hazardous atmosphere: An atmosphere that may expose employees to the risk of death, incapacitation, and impairment of ability to self-rescue (that is, escape unaided from a permit space), injury, or acute illness from one or more of the following causes:

- (1) Flammable gas, vapor, or mist in excess of 10 percent of its lower explosion limit (LEL);
- (2) Airborne combustible dust at a concentration that meets or exceeds its Lower Flammable Limit (LFL);
- (3) Atmospheric oxygen concentration below 19.5 percent or above 23.5 percent;
- (4) Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published in Subpart G, Occupational Health and Environmental Control, or in Subpart Z, Toxic and Hazardous Substances, of 29 CFR 1910 and which could result in employee exposure in excess of its dose or permissible exposure limit;

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- (5) Any other atmospheric condition that is immediately dangerous to life or health.

2.10 Immediately dangerous to life or health (IDLH): Any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individual's ability to escape unaided from a permit space. (Note: in virtually all instances, spaces that are 10% LFL or below, may still be in excess of the IDLH for that substance.)

2.11 Oxygen deficient atmosphere: An atmosphere containing less than 19.5 percent oxygen by volume.

2.12 Oxygen enriched atmosphere: An atmosphere containing more than 23.5 percent oxygen by volume.


2.13 Permit-required confined space (permit space): A confined space that has one or more of the following characteristics:

- (1) Contains or has a potential to contain a hazardous atmosphere;
- (2) Contains a material that has the potential for engulfing an entrant;
- (3) Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section;
- (4) Contains any other recognized serious safety or health hazard;
- (5) NRC West considers all confined spaces as permit required.

2.14 Rescue service: The personnel designated to rescue employees from permit spaces.

2.15 Retrieval system: The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

2.16 Testing: The process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.


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### 3.0 RESPONSIBILITIES

Designated employees will be listed by name for each position or responsibility including: attendant, authorized entrants, entry supervisor and air monitor.

#### 3.1 Attendants shall:

- Know the hazards that may be faced during entry in the permit-required confined space, including the signs, symptoms and consequences of over-exposure;
- Be aware of possible behavioral effects of hazard exposure to the entrants;
- Continuously maintain an accurate count of authorized entrants;
- Remain outside the permit-required confined space during entry operations until relieved by another attendant. A single attendant will NOT monitor multiple spaces;
- Communicate with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space if necessary;
- Monitor activities inside and outside the space to determine if it is safe for entrants to remain in the space and order the authorized entrants to evacuate the permit-required confined space immediately if necessary;
- Summon rescue and other emergency services if necessary;
- Take the appropriate actions when unauthorized persons approach or enter a permit space while entry is underway;
- Perform non-entry rescues as specified by this procedure;
- Perform no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.


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3.2 Authorized entrants shall:

- Know the hazards that may be faced during entry, including information on the route of entry, signs or symptoms, and consequences of the exposure;
- Properly use the required equipment;
- Communicate with the attendant, as necessary, to enable the attendant to monitor entrant status and to enable the attendant to alert entrants of the need to evacuate as necessary;
- Alert the attendant whenever the entrant recognizes any warning sign or symptom of exposure to a dangerous situation, or the entrant detects a prohibited condition;
- Exit from the permit-required confined space as quickly as possible whenever:
  - (1) An order to evacuate is given by the attendant or the entry supervisor;
  - (2) The entrant recognizes any warning sign or symptom of exposure to a dangerous situation;
  - (3) The entrant detects a prohibited condition; or
  - (4) An evacuation alarm is activated.

3.3 Entry supervisors shall:

- Perform a Hazard Assessment of all Confined Spaces before employees enter them. Entry supervisors shall identify and evaluate the hazards that may be faced during entry, including information on the routes of entry, signs or symptoms, and consequences of the exposure. This assessment shall be conducted and documented before employees enter;
- Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following: (A) Specifying acceptable entry conditions; (B) Isolating the permit space; (C) Purging, inerting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards; (D) Providing pedestrian, vehicle, or other barriers as necessary to protect

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entrants from external hazards; and (E) Verifying that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry;

- Verify, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing entry to begin;
- Terminate the entry and cancel the permit when entry operations covered by the permit are complete or when a prohibited condition arises in or near the space;
- Verify that the NRC West rescue plan is complete and that proper equipment / trained employees are available;
- Take the following actions when unauthorized persons approach or enter a permit space while entry is underway: (A) Warn unauthorized persons that they must stay away from the permit space; (B) Advise unauthorized persons that they must exit immediately if they have entered the permit space; and (C) Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space;
- Determines that entry operations remain consistent with terms of the entry permit and that acceptable entry conditions are maintained.


#### 4.0 RESCUE SERVICES

##### 4.1 Rescue Plan

Prior to any confined space work, a site-specific written rescue plan will be developed that addresses minimum requirements. The rescue plan will be addressed on the confined space permit and covered with the entrants prior to initial entry.

##### 4.2 Basic Rescue Requirements

4.2.1 NRC West Entry Supervisor shall ensure that at least one standby personnel at the site is trained and immediately available to perform rescue and emergency services.

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4.2.2 A trained attendant will be assigned to each confined space with a fully charged SCBA or airline and egress unit in the event that monitoring indicates Oxygen deficient or atmospheres >PELs. The attendant is to keep life lines clear, to maintain contact with all workers within the confined space and to summon help if needed.

4.2.3 If Fire Department rescue teams will be utilized, the supervisor must ensure that the rescue team has been contacted in advance and has the capability to perform a rescue. The Fire Department teams must be provided the opportunity to examine the rescue site, practice a rescue and decline if appropriate.

It should be understood, that the time required to recognize the need for rescue, to contact the fire department and allow them to safely perform the rescue may require at least 45 minutes. For this reason, any rescue plan should be realistic. It should be noted that in many states or cities, Fire Department rescue is not an option.

4.2.4 The equipment required to rescue an unconscious victim must be in place before the first person enters the confined space. This means that personnel must be wearing harnesses, and rescue tripod /winch is set-up and operational.


#### 4.2.5 Client Host Rescue Service

If the confined space rescue plan relies upon the client host to provide the rescue, this must be specifically stated and agreed to in attached contract language.

4.2.6 NRC West Entry Supervisor shall ensure that each member of the rescue service is provided with, and is trained to use properly, the personal protective equipment and rescue equipment necessary for making rescues from permit spaces on an annual basis.

#### 4.2.7 Training Requirements for Rescue Team Members

- Each member of the rescue service must have been trained to perform the assigned rescue duties.
- Each member of the rescue service must also receive the training required of authorized entrants.
- Each member of the rescue service must practice making permit space rescues at least once every 12 months by means of a simulated rescue operation (i.e. remove dummies, manikins or actual persons) from spaces representative of the type they may encounter.
- Each member of the rescue team shall be trained in basic first-aid, cardiopulmonary resuscitation. At least one member of the

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rescue service holding a current certification in First Aid shall be available on the team.

#### 4.3 Entry Rescue Procedures

4.3.1 Entry rescue procedures should be specifically designed for each permit-required confined space and should be included, where applicable, in the written site health and safety plan. The rescue plan shall:

- Include provisions for emergency communication;
- State how the rescue team and other emergency services will be summoned to the site;
- State what level of personal protective equipment is necessary for rescue operations;
- State what other types of equipment may be needed, including escape personal protective equipment for injured entrant(s), if necessary.

4.3.2 Attendants may perform entry rescue operations only if properly trained and if relieved of the attendant duties by another qualified attendant.

#### 4.3.3 IDLH Conditions

It is the policy of NRC West that personnel do not enter IDLH situations for work or rescue. Ventilation will be used to eliminate IDLH conditions and non-entry rescue procedures will be used to extract personnel.

#### 4.4 Non-entry Rescue Procedures

4.4.1 Non-entry rescue operations shall be facilitated as much as possible in order to decrease the risks associated with emergency entry into a confined space. All company attendants shall be trained to perform non-entry procedures.

4.4.2 Retrieval systems or methods shall be used for all entries into permit-required confined spaces unless the retrieval system would increase the overall risk of the entry or would not work adequately in the space being entered.

4.4.3 Retrieval systems shall consist of chest or body harnesses with a retrieval line attached to the center of the entrant's back, near shoulder level. The retrieval line shall be attached to either a fixed point or, for spaces more than five feet deep, a mechanical device. The fixed point or mechanical device shall be located outside the confined space.

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4.4.4 Wristlets may be used in lieu of the chest or full body harness if it can be demonstrated that the use of a chest or full body harness is infeasible or creates a hazard and that the use of wristlets is the safest and most effective alternative.

#### 4.5 Site Specific Contingency / Emergency Plan / Drills

4.5.1 NRC West employees working on high hazard gas sites or confined space entries, will be aware of site owner's specific contingency / emergency plan provisions including evacuation routes and alarms.

4.5.2 Employees should participate in emergency evacuation drills and practice rescue procedures on site.

### 5.0 CONFINED SPACE ENTRY PROCEDURE


#### 5.1 Permit System

NRC West requires a confined space permit for each confined space regardless of characterization of space. This provides a documented work plan for each employee and ensures that all cautionary steps have been taken prior to entry.

5.2 All "permit required confined space" entries will be preceded by the completion of a confined space entry permit.

5.3 All confined space entry permits will address the following:

- Location
- Past and present contents of the tank
- Hazards Isolation
- Lock out / Tag Out
- PPE and special equipment
- Designate who will perform air monitoring
- Air monitoring requirements and results of such monitoring
- Personal monitoring
- Training required
- Specifically designate Confined Space Supervisor

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- Specifically designate attendant(s) by name
- Specifically designate entrants by name
- Attendants to be present as alternates
- Communication procedures
- Emergency / rescue procedures
- Confined space classification
- Posting of notification

#### 5.4 Reviewing Permit Prior / During Entry

Confined Space Supervisor will ensure that all entrants and attendants are providing opportunity to review permit and provide input regarding data that does not seem to be covered or explained (unauthorized entry, hazards not covered by the permit, injury response, etc).

#### 5.5 Canceling the Permit

The Confined Space Supervisor will ensure that the permit has been cancelled after operations have been completed each day or when there has been a change in conditions from those originally identified on the permit.

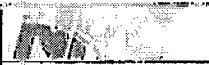
#### 5.6 Review of Air Monitoring Data Prior to / During Entry

5.6.1 The Confined Space Supervisor will ensure that each entrant and attendant have reviewed, understand and have faith in the air monitoring data used to determine confined space conditions and required protective equipment.

5.6.2 Additionally, entrants and attendants will agree upon method of communication of ventilation and air monitoring results change during confined space work.

#### 5.7 Changes of Conditions / Declassification of Space

If any hazards that differ from original permit conditions arise within a space, each employee in the space shall exit the space. The NRC West entry supervisor shall then reevaluate the space and determine whether a new permit and entry procedures must be issued.

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#### 5.8 Use of Contractors in Confined Space

When an employer (host employer) arranges to have employees of another employer (contractor) perform work that involves permit space entry or confined space entries, the host employer shall:

(A) Inform the contractor that the workplace contains permit spaces and that permit space entry is allowed only through compliance with a permit space program meeting the requirements of this section, section 5158 or section 8355, depending on which section applies to the contractor; (B) Apprise the contractor of the elements, including the hazards identified and the host employer's experience with the space, that make the space in question a permit space; (C) Apprise the contractor of any precautions or procedures that the host employer has implemented for the protection of employees in or near permit spaces where contractor personnel will be working; (D) Coordinate entry operations with the contractor, when both host employer personnel and contractor personnel will be working in or near permit spaces, as required by subsection (d)(11); and (E) Debrief the contractor at the conclusion of the entry operations regarding the permit spaced program followed and regarding any hazards confronted or created in permit spaces during entry operations.

#### 5.9 Multi-employers working in Confined Space


It is NRC West policy that multi-employers will not work simultaneously in the confined space. Each employer will write their own confined space permit and assume responsibility for their own employees and work duties.

#### 5.10 Reevaluation of Space

Confined Space Supervisor will ensure that entrants and attendants are aware of method of communicating a possible change in space condition and the opportunity to reevaluate the space. Employees and their representatives are entitled to request additional air monitoring at any time. The request for reevaluation may occur during a scheduled break or communicated to the attendant depending upon potential safety risk. This change in condition may necessitate a work stoppage, egress and reevaluation of the entire permit prior to re-entry.

#### 5.11 Permit Retention

NRC West shall retain each cancelled entry permit for at least one year to facilitate review of the permit space program by a qualified person as required by subsection (d)(4). Any problems encountered during an entry operation shall be noted on the pertinent permit and communicated to the NRC West Safety Director so that appropriate revisions to the permit space program can be made.

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## 6.0 TRAINING / DOCUMENTATION

### 6.1 Training:

6.1.1 NRC West will train employees involved in confined space entry, gas hazards, confined space rescue and the hazards associated with confined space work.

6.1.2 Training shall be provided to each affected employee:


(A) Before the employee is first assigned duties under this section; (B) Before there is a change in assigned duties; (C) Whenever there is a change in permit space operations that presents a hazard about which an employee has not previously been trained; (D) Whenever the employer has reason to believe either that there are deviations from the permit space entry procedures required by subsection (d)(3) or that there are inadequacies in the employee's knowledge or use of these procedures.

6.1.3 Training will be documented in their personnel records and the corporate training matrix.

6.1.4 This training, including gas hazards, will be conducted before initial assignment and annually thereafter.

6.1.5 Training will cover the following:

GENERAL CONFINED SPACE TRAINING		
Hazard Recognition	Air Monitoring, capabilities and limitations	
Respirator Use	First Aid	Lockout Procedures
Safety Equipment	Rescue Drills	Permit System
Safe Work Practices	Emergency Entrance / Exit	
Communication Requirements		
GAS HAZARD AWARENESS TRAINING		
Location of Alarm Stations	Gas Monitoring Equipment –portable and fixed	
Gas Alarms	Gas Hazards-characteristics of gases including oxygen deficiency, oxygen / nitrogen enrichment, carbon monoxide, hydrogen sulfide	
Any plant, department or confined space gases of concern		Signs and symptoms of over exposure
Personnel rescue procedures		Staging Areas-primary and secondary
Use and Care of SCBA including donning and emergency procedures (if applicable)		Evacuation Procedures

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## 6.2 Documentation

6.2.1 All training, including gas hazard awareness, will be documented and available for review.

6.2.2 Training will be documented on a certificate and in the corporate training matrix.

6.2.3 The certificate or documentation shall include employee name, trainer name and / or initial date of training.

6.2.4 The certificate must be made available to the employee or their authorized representative.

## 7.0 ATMOSPHERIC TESTING AND MONITORING

7.1 Initial Monitoring - Entry into a confined space is prohibited until initial monitoring of the atmosphere for oxygen content and toxic gas concentration is conducted from the outside. Initial monitoring gives critical information concerning oxygen level, flammability and toxicity hazards.

7.2 Hot Work - All hot work is prohibited in confined spaces in which monitoring indicates that there are flammable compounds in excess of 10% of the Lower Explosive Limit (LEL). The monitoring device must be intrinsically safe for flammable atmospheres or explosion proof. If hot work must be performed in the confined space, a hot work permit must be completed. Cutting gas cylinders and welding machines will not be taken into confined space.

### 7.3 Air Monitoring Instrumentation

7.3.1 Four Gas meter / PID will be provided for general space monitoring.


7.3.2 Personal portable detectors will be used by each confined space entrant in high gas hazard areas (potential IDLH).

### 7.4 Calibration

7.4.1 All monitoring equipment will be calibrated once a month per manufactures recommendations.

7.4.2 Calibration records will be kept for a minimum of one year from the date of measurement. Calibration records are maintained electronically via Industrial Scientific INET Services; see your Regional Safety Manager for records as needed.

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7.4.3 The response charts associated with the calibration gas will be kept with the 4-Gas / PID meter at all times.

7.4.4 Daily bump tests are required to be completed at the beginning of each day the monitor is in use per manufacturer's guidelines to insure the monitor is functioning correctly.

7.5 Oxygen Requirement - The percent oxygen for entry will not be less than 19.5% for confined space entry unless supplied air respirators are utilized. If oxygen levels are greater than 22%, the confined space must be ventilated prior to any "hot work." Any oxygen reading above or below 20.9% will be reported to the project manager before further entry is attempted. In the event of deficient oxygen, the tank will be ventilated until such time as the level of O<sub>2</sub> is brought up to 20.9%.

7.6 Permissible Exposure Limits (PEL) -- NRC West employees will be provided with and will be required to properly use protective clothing and respiratory protective equipment when contaminants in the atmosphere reach or exceed the PEL. The personal protective equipment (PPE) selected will reduce exposure to contaminants to acceptable levels.

7.7 Dedicated Monitoring of Multiple Confined Spaces - In the event of multiple / simultaneous confined space entries, a single attendant will not be used to monitor each space. It is not feasible for one attendant to safely monitor more than one space at the same time.

## 8.0 LABELING AND POSTING


8.1 Any signs warning of dangers in the work area will be in English and the predominant language of any non-English reading workers.

8.2 All entrances to confined spaces at NRC West facilities and on-going projects will have appropriate signs posted. The signs should include the following, if applicable:

**Danger**  
**Confined Space**  
**Entry by Permit Only**

The following statements shall be added where necessary:

**Respirator Required for Entry**  
**Lifeline Required for Entry**  
**Hot Work Permitted**  
**No Hot Work**

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8.3 Emergency numbers will be conspicuously posted near the work area or at the telephone nearest the work area.

## **9.0 SAFETY EQUIPMENT AND PPE**

9.1 All necessary equipment (PPE, communication, testing, ventilation, etc.) shall be provided to the employee at no cost and maintained in the proper manner.

9.2 The project manager or site supervisor shall determine, and list on the confined space permit, the necessary safety equipment and PPE.

9.3 The site supervisor will ensure that the safety equipment is properly used and is maintained in the proper working condition.

9.4 These PPE items may include, but are not limited to:

Eye Protection	Face shields	Hard hat
Safety shoes or boots	Hearing Protection	Respiratory Protection
Alarms	Harnesses	Lifelines
Wrist Harnesses	Fall Protection	
Barricades	Retrieval System	

## **9.5 Respiratory Protection Program**


9.5.1 A respiratory protection program will be in place and established in accordance with 29 CFR 1910.134.

9.5.2 NRC West program requirements include: quantitative fit testing, pulmonary function tests, and documented fitness for duty.

## **10.0 WORK PRACTICES**

10.1 Purge and Ventilation - During purge and ventilation procedures, blower controls will be a safe distance from the confined space. Initial testing is to be conducted prior to purge/ventilation to determine what precautions are necessary. If a flammable atmosphere exists, all electrical equipment must be intrinsically safe or explosion proof. Continuous ventilation will be required when welding or painting in a confined space, or where a toxic atmosphere may form from desorption from walls, or evaporation of chemicals. Ventilation systems must not prevent egress from the area or interfere with communications.

10.2 Exhaust of Confined Space Gases – Duct work will be installed on the exhaust outlet for the confined space to insure that any purged gases are directed away from work/decon/support or ignition source areas.

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10.3 Bonding/Grounding -- all ventilation equipment will be bonded and grounded to isolate and remove the potential static discharge.

10.4 Isolation / Lock-out / Tag-out - Each confined space will have isolation procedures specifically developed. The confined space must be completely isolated from all systems by physical disconnect, block and bleed, or blanking and tagging. Electrical systems must be de-energized and locked out. All systems should be checked for stored energy before any entry into confined space is attempted.

10.5 Cleaning - Cleaning procedures will be reviewed and approved by the qualified person. Initial cleaning will be conducted from outside the tank whenever possible to minimize exposures to employees. Cleaning may be accomplished by flushing with water or chemical cleaners. At times the use of a "Butterworth" cleaning head may be required. In any case, the cleaning method must be reviewed before entry is performed.


#### 10.6 Protection of Employees During Entry Into Confined Space

The NRC West Confined Space Supervisor will ensure that sufficient barricades and warning signs have been installed to protect entrants from external hazards. The Confined Space Supervisor will verify that all pre-entry conditions including air monitoring, lockout, rescue plans etc. have been conducted and in place prior to initial entry.

### 11.0 EQUIPMENT AND TOOLS

All equipment used in confined space operations will be inspected and meet the following minimum requirements:

- Hand tools will be kept clean and in proper working condition;
- Electric tools, equipment and lighting will be intrinsically safe or explosion proof for flammable atmospheres and be equipped with ground fault circuit interrupters (GFCI);
- Extension cords will be industrial quality, 3 wire and 12 gauge as a minimum;
- With the exception of SCBA tanks or life saving equipment, compressed gas cylinders will never be taken into a confined space;
- Ladders and scaffolding will meet or exceed OSHA requirements contained in 29 CFR 1910.25-28.


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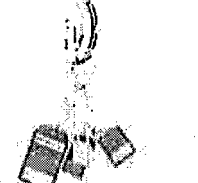
## 12.0 REVIEWING WRITTEN PROGRAM

Corporate and Regional Safety Managers will review the NRC West Permit required confined space program using the cancelled permits for previous year's projects. The purpose of this review is to revise the program as necessary to ensure that employees are adequately protected.



## **Appendix E: NRC Lockout/Tagout Program**

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Procedure 16.2	Lockout / Tag Out	Revision: 08/2009

	Lock Out / Tag out
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## 1.0 PURPOSE

This procedure establishes the minimum safety requirements to ensure the proper deactivation of movable, electrically energized, pressurized equipment and systems, and systems containing hazardous materials prior to repairing, cleaning, oiling, adjusting, or similar work. This is necessary to ensure that unexpected start-up or release of energy, which could cause an injury, does not occur. This procedure complies with the requirements of 29 CFR 1910.147.

It is the responsibility of each site supervisor or Project Manager to ensure that each employee affected by this procedure is aware of the program requirements and has been trained in the procedures.

## 2.0 REQUIREMENTS


This procedure applies to all equipment that receives energy from electrical power, hydraulic fluid under pressure, compressed air, steam, energy stored in springs, potential energy from suspended parts, or any other source that may cause unexpected movement when it is necessary to perform work on that system. It also applies to similar functions performed on systems containing hazardous materials.

## 3.0 DEFINITIONS

3.1 Authorized employee - A person who locks or implements a tag out system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment.

3.2 Capable of being locked out - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

3.3 Energized - Connected to an energy source or containing residual or stored energy.

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3.4 Energy isolating device - A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

3.5 Energy source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, steam, thermal, or other energy.

3.6 Lockout - The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

3.7 Lockout device - A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds. It must contain the name of the individual placing this device. If an energy source can be locked out, this method shall be utilized.


3.8 Tag out - The placement of a tag out device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag out device is removed.

3.9 Tag out device - A prominent warning tag (weather resistant) and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tag out device is removed. Must contain words warning of hazardous energy, (Do Not Start) (So Not Close) (Do Not Energize) (Do Not Operate). Must contain the name of the individual placing the device.

#### 4.0 REMOVING EQUIPMENT FROM SERVICE / ENERGY CONTROL

Prior to initiating any repairs, modifications and/or adjustments to operating equipment, these steps will be followed:

4.1 The immediate supervisor, who has jurisdiction over the equipment, and all affected employees will be notified that the energy sources are to be deactivated and will be responsible for enforcement of the program.

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4.2 The immediate supervisor and the authorized employee who will work on the equipment will identify all energy sources of power that must be isolated. Potential energy sources include: electrical, steam, hydraulic, tension, gravity.

4.3 Preparation for Shutdown: The authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled and the methods or means to control the energy.

4.4 Machine or Equipment Shutdown: The authorized employee will shut down the machine or equipment by the normal shutdown procedure established for the machine or equipment (e.g. depress the STOP button, turn the switch, close the valve, etc.).

4.5 The energy-isolating device(s) will then be deactivated so that the machine or equipment is isolated from the energy source. If for example, the energy source is electrical, move the circuit breaker switch to the off position. If the source is hydraulic, close the valve.


4.6 The authorized employee will then lock out the energy-isolating device(s) with the individually assigned padlocks. Note that tags are only used for identification NOT as a lock out device. The padlocks must not be used for any purpose other than energy isolation. The locks will be individually keyed and contain the name of the employee to prevent another employee from removing the lock inadvertently. The padlocks will remain on the energy-isolating device until the job is complete. Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy devices from the safe or off position. Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.

4.7 If the energy source is hydraulic, steam, etc and a valve must be closed to isolate the energy source, install a chain around the valve wheel and lock the chain to prevent accidental operation of the valve.

4.8 For plug and cord equipment that cannot be unplugged and moved a safe distance away from an electrical outlet, the designated plug lockout devices will be used. The device is a red plastic cover that fits over the plug. The cover is then closed and locked to prevent accidental insertion into an outlet.

4.9 The authorized employee will then sign and date the lockout tag and install it on the lock using one of the designated plastic tag ties.

4.10 Stored or residual energy such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems (gas, air, water, etc.) must

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be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc. If there is a possibility of reaccumulation of stored energy levels, verification of isolation shall be continued or until the possibility of such accumulation no longer exists.

4.11 Verification of Isolation: After ensuring that no personnel are exposed to the equipment, verify the isolation of the energy source by trying to start the equipment (e.g. push the start button). Return the operating control(s) to the neutral or OFF position.

## **5.0 PROCEDURE INVOLVING MORE THAN ONE AUTHORIZED EMPLOYEE**

5.1 When more than one authorized employee works on a machine or equipment, the procedure must afford the group of employees a level of protection equal to that provided by a personal lockout or tag out device. Each authorized employee will attach his or her padlock to the energy-isolating device with their name on the padlock. This may require the use of a multiple lockout device (or hasp). One tag may be used for all employees.


5.2 When another contractor, craft or department works on a machine or equipment, both the other contractor and the authorized employee will install their padlocks. The employee's padlock will stay on the hasp for the duration of the job or shift.

## **6.0 SPECIAL CONDITIONS**

6.1 Temporary Removal of LOTO Devices. During certain operations it may be necessary to energize the equipment for a short period of time. Employees in the immediate area will be notified and directed to stay clear of the equipment. If the operation is to be deactivated again, the employee should repeat applicable steps of this procedure before work resumes and accomplish the following in this order:

- Clear away tools
- Remove employees
- Remove the LOTO device
- Energize and proceed with testing
- De-energize and reapply control measures
- Document who, what, when and how

6.2 In some instances work will carry over to another shift. The maintenance supervisor shall affix a department lock to the equipment to ensure that it is not energized during the transition. During subsequent shift operations, employees will ensure that steps are complete before work resumes on the equipment.

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6.3 If the work is completed and a lock remains on the equipment, it shall not be removed until the employee responsible for the lock is found or the supervisor of the employee investigates and ascertains that the equipment is safe to operate. Unauthorized removal of a lock will subject the violator to disciplinary action up to dismissal.

## 7.0 RESTORING EQUIPMENT TO SERVICE

When the servicing or maintenance has been completed and the machine or equipment is ready to return to service, the following steps shall be taken:

7.1. Check the machine or equipment and the immediate area around the machine or equipment to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

7.2 Check the work area to ensure that all employees have been safely positioned away from the machine or equipment.

7.3 Verify that the controls are in neutral.

7.4 Remove the lock and tag and reenergize the machine or equipment.

7.5 Notify the department responsible for the machine or equipment that the servicing or maintenance is completed and that the machine or equipment is ready for use.

## 8.0 TRAINING

Initial lockout / tagout training will be provided during the 40 hour Hazwoper and annual refresher to all affected employees to ensure that the purpose and function of this energy and control program are understood. The training will include:

Recognition of hazardous energy sources	Methods, purpose and use for energy isolation and control
All affected employees are instructed in the purpose and use of the energy control procedure	Limitations of tags (warning device only); when they should be used; when they can be removed; prohibition against ignoring or defeating tag
When can tags or locks be removed	Retraining if change in job assignments, change in machines, change in energy control procedures, or a new hazard introduced etc
Type & Magnitude of Energy Available	

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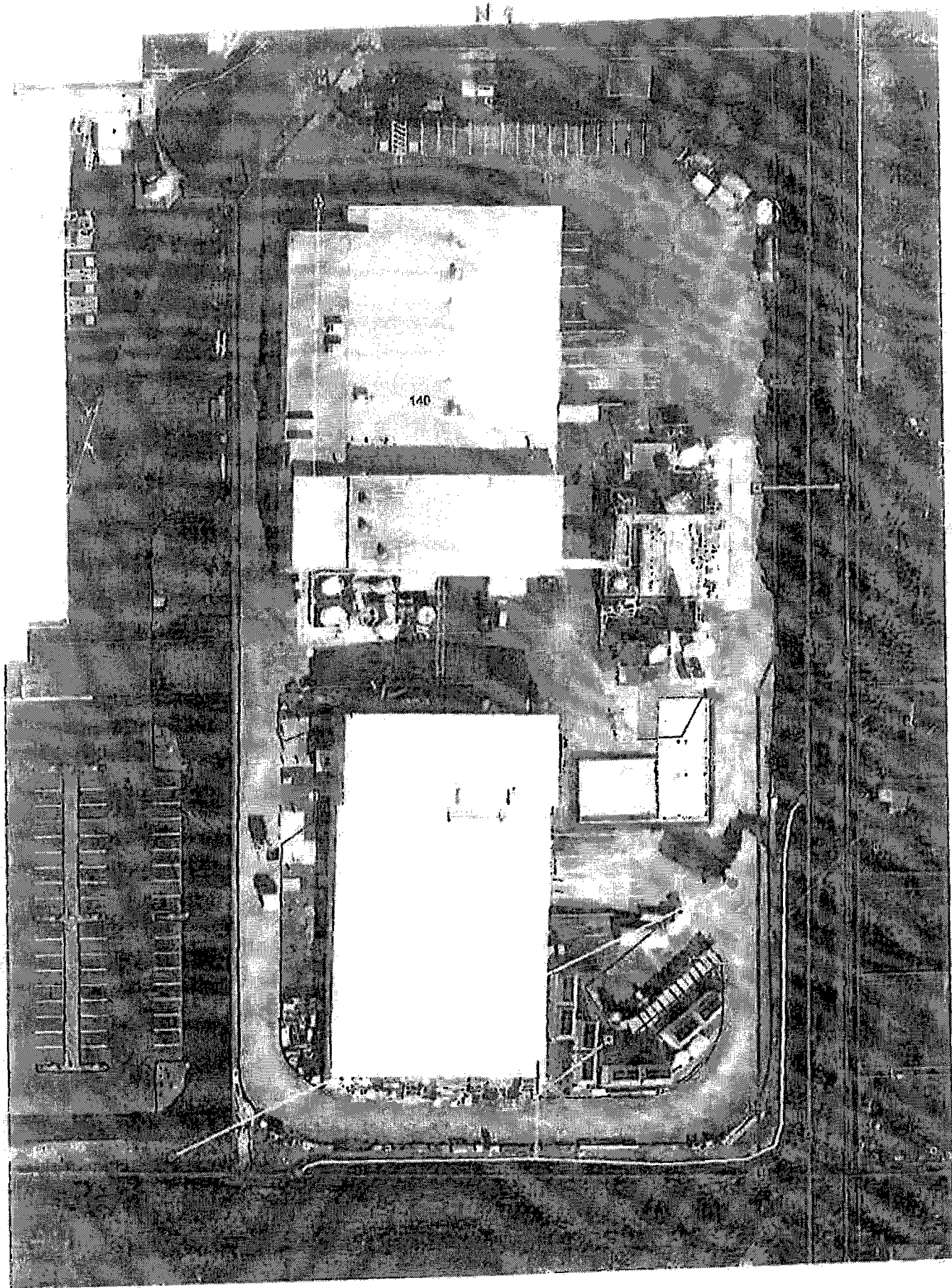
All training will be documented on an end of course certificate and filed in their personnel records.

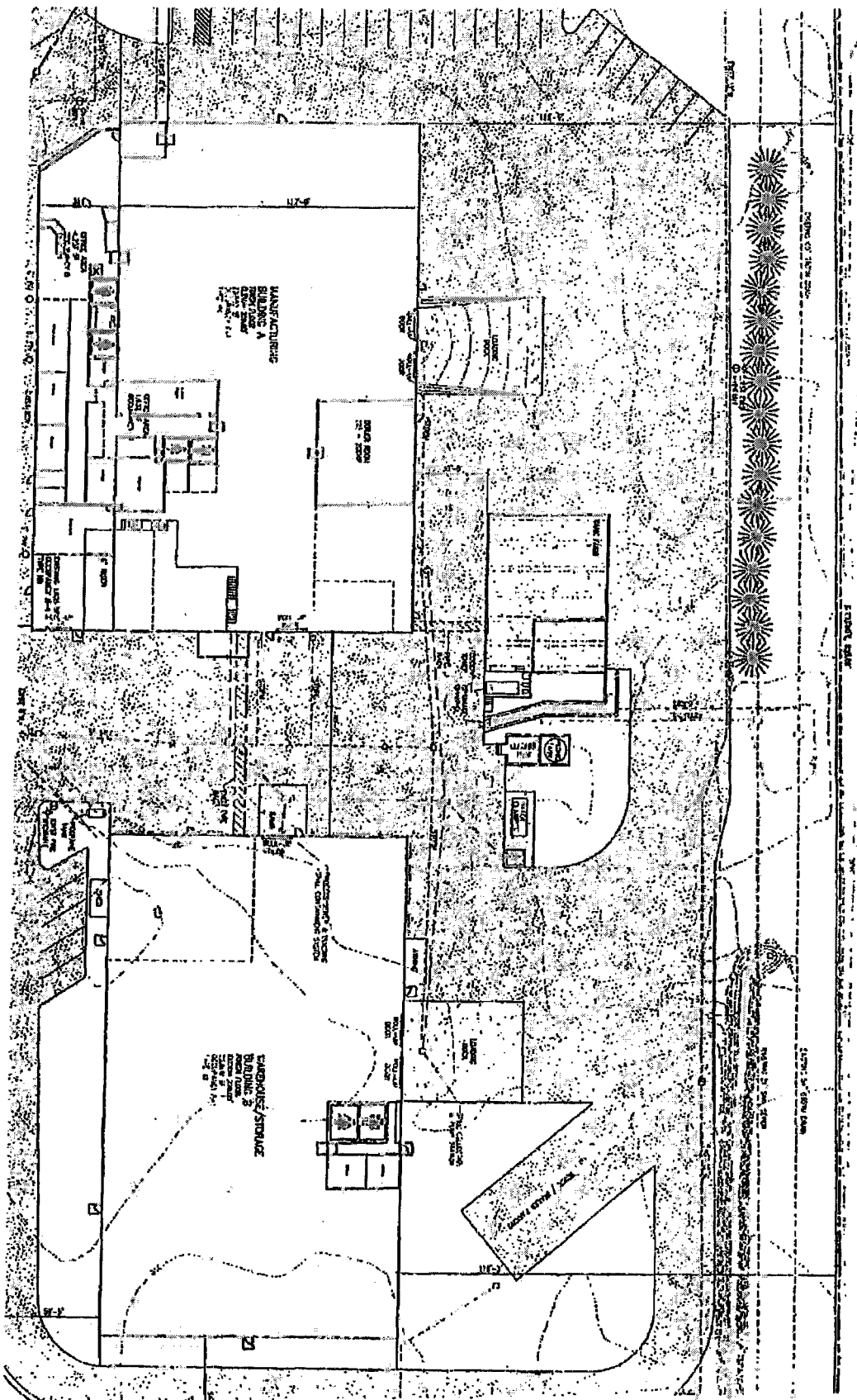
#### **9.0 ANNUAL INSPECTION OF LOCKOUT/TAG OUT PROGRAM**

The Regional Health and Safety Managers will conduct annual inspections of the energy control program to ensure that the requirements of their procedures are being followed. A record of the annual audits including date, equipment, employees & the inspector should be documented.



## **Appendix F: Storm Water System Maps**





Storm water  
Sanitary  
water  
Process water